



1960

SARAWAK

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His Excellency the Governor and Commander-in-Chief of
Sarawak, Sir Alexander Nicol Anton Waddell, K.C.M.G., D.S.C.



SARAWAK

ANNUAL REPORT

1960

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PART I

GENERAL REVIEW OF THE YEAR

ON the 23rd of February Sir Alexander Waddell, K.C.M.G., D.S.C., assumed office as Governor and Commander-in-Chief, an early important event in a year which was one of continuing progress and prosperity for Sarawak. Trade was good; development went ahead; there were no industrial disputes of any consequence; peace and order reigned; there were plenty of indications of quickening life in the community, political, economical, cultural and recreational. Only a falling off in export prices during the last two months hinted how narrow-based the economy still is.

Two good years in succession made it possible to expand the 1959-1963 Development Plan from \$115 million to \$150 million. This was an extension of the Plan rather than a revision. The main heads of expenditure remain as before—agriculture, communications, education and health—but with more money in sight the speed of development could be accelerated and some items included which had previously been deferred. The balance of the Plan remains the same, two-thirds economic development and one-third social (including education and health). About one-fifth of this total of \$150 million will be financed by loans. The remainder must come from reserve funds, Colonial Development and Welfare grants and contributions from the territory's surplus revenues. The financial outcome of the year fully justified the optimism inherent in the stepping-up of the Development Plan. Revenue reached a record figure of nearly \$81 million which will probably enable some \$25 million to be transferred to the Capital Account. It remains as essential as ever to ensure that the country's recurrent expenditure is kept in balance with normal revenue expectations and that all the cream is skimmed off and transferred to the Capital Account. With an expanding population and expanding commitments the recurrent expenditure will go on rising steadily over the next few years irrespective of any extension of services.

During the year a population census was carried out in conjunction with North Borneo and Brunei. The full report is still under preparation but the population of Sarawak is shown to be 744,529, as compared with 546,385 in 1947, an increase of thirty-six per cent. Racially the breakdown is:

Malay	129,300
Melanau	44,661
Sea Dayak	237,741
Land Dayak	57,619
Other Indigenous	37,931
Chinese	229,154
European	1,631
Others	6,492

Forty-four per cent of the population is under the age of fifteen.

In agriculture, the back-bone of the country's economy, the main effort continues to be concentrated on the Rubber Planting Scheme which is keeping up with its target of 90,000 acres by the end of 1963. The cost, also, has been within the original estimates but this unfortunately will not be so henceforward as a result of the increase in the duty on exported seeds by the Federation of Malaya. As a supplement to the main scheme it has been decided to provide free planting material to selected farmers living in areas at present inaccessible to supervision by the Rubber Development staff. The target acreage under the Coconut Planting Scheme was doubled to 20,000. The importance of research was illustrated by the identification of a serious physiological disorder attacking pepper and the recommended application of a simple remedy. A new Extension Training Centre was opened at Tarat and plans were drawn up in conjunction with the Colonial Development Corporation for an oil palm pilot scheme in the Fifth Division.

With all the effort that has gone, is going, and will continue to go into agricultural development it remains true to say that in general Sarawak is a backward and inefficient agricultural producer. There is no quick or easy remedy for this. The problems are indifferent soil, shifting cultivation, the absence of individual title to most of the land, the prevalence of

customary rights, and lack of communications. The speed and efficiency with which these problems can be tackled is conditioned not only by the availability of money and qualified staff but by the willingness of the rural population to accept changes in their traditional way of life. A long process of gradual education and adaptation lies ahead. If it is taken too fast social and moral convulsions will result. Nevertheless if Sarawak is to retain and improve its standard of living it must be pushed along as rapidly as the health of the patient will stand. There is certainly scope for the injection of a modicum of high-efficiency plantation agriculture to stimulate the small-holders on whom the main burden of production will continue to rest.

The importance of forests to the country's economy is shown by the fact that timber exports now lie third in order of value. *Ramin* remains much the most important export timber but its life is limited and attention must increasingly be paid to the exploitation of other species. A welcome initiative was taken during the year by the Colonial Timber Company in experimenting with the possibilities of tractor logging in the forests south of the Rejang, between Song and Kapit. The first veneer plant in Sarawak started operations at Selalang early in the year. A forestry five-year development plan was approved in principle. The emphasis is on long-term management plans for the permanent forests and their improvement by silvicultural treatment. Provision has also been made for the setting up of a utilization branch to investigate the properties of Sarawak timbers and provide an advisory service for users of timber both in this country and overseas.

Turning to minerals, the year saw a notable anniversary in the celebration by the Shell Company of fifty years of commercial drilling for oil in Sarawak. The original well, sunk in 1910, is still producing. The quantity of oil obtained from Sarawak is now a mere trickle and exploration has not so far yielded any worthwhile results. Off-shore drilling provides the best prospect yet untapped and this will go ahead in 1961. Bauxite exports, while not quite reaching the target of 260,000 tons set for 1960, continued to expand encouragingly and there are promising indications of more extensive deposits than were

at first detected. Japanese interest in the exploration of the extensive coal deposits at Silantek continues and it is hoped that a full-scale survey will take place early in 1961.

Despite staff shortages the Public Works Department made satisfactory progress with its works programme, the main effort going into roads, the new Kuching port, Batu Lintang Teachers' Training College and secondary schools, water supplies and Government offices and quarters. The whole Government capital works programme for 1960, costing \$35 million, was twice that of 1955 and fourteen times that of 1948, when development planning began.

Government capital expenditure is being matched to an increasing and encouraging degree by private enterprise. Besides substantial investment in agriculture, timber extraction and mining there has been a significant expansion of manufacturing, covering such products as metal boxes and containers, knitted garments, biscuits, cigarettes, rubber sandals, metal and neon signs, chain link fencing and wooden implements.

Council Negri (the legislature) held three meetings during the year. A general election had taken place at the end of 1959 for the twenty-four elected seats and one of the main items of business at the first meeting, in March, was for the elected members to choose five representatives to sit on the Supreme Council. As the Governor nominated another elected member, Supreme Council has an elected unofficial majority in its total membership of ten. Neither the general election nor the election to Supreme Council was conducted on party lines but both registered political parties (the Sarawak United People's Party and Party Negara) have campaigned vigorously for membership throughout the year and party activities are now a feature of the political scene, with consequences both good and bad.

Two main dishes were served up for Council Negri's second meeting, in August—the supplementary Development Plan, which has already been mentioned; and a motion to adopt an education programme for 1961-63 based largely on the McLellan Report of the previous year. Briefly, the programme aimed at producing sufficient schools and teachers to achieve universal primary education and secondary education for about thirty per cent of primary school leavers. Education is the topic above all

in Sarawak which can be guaranteed to generate controversy. There was a lively debate followed by a division (the first in Council Negri's history) before the motion was passed. The Government is under continual pressure to spend more and more on education. It already takes up eighteen per cent of the ordinary revenue and will inevitably consume a higher proportion as time goes on. At present the total estimated population of children in the primary school age groups is about 130,000 and there are 95,000 children attending primary schools although a proportion of these are over aged. A further 9,000 children attend secondary schools.

The third Council Negri meeting, besides voting the budget for 1961, passed a bill introducing personal income tax into Sarawak for the first time. Though many will lament this none can claim it to be premature.

Other notable legislation enacted during the year included a Road Traffic Ordinance, which gave statutory effect to a complete re-organization of the licensing and control of motor vehicles undertaken by the Land Transport Officer, and a mammoth Merchant Shipping Ordinance.

Steady progress was made in developing the health services. The Shell hospital and tuberculosis unit at Miri were taken over by Government and work was begun on hospitals at Sarikei and Limbang. The increasing emphasis on preventive work was evidenced by the creation and filling of a post of Specialist Health Officer. The anti-malaria project moved from the control to the eradication stage and plans were approved for a country-wide anti-tuberculosis programme.

Although Communism remains no more than a potential threat to the stability of the country the Government considered it necessary to alert the people to the existence of a secret organization working underground for the establishment of a Communist state. This was done by way of a Sessional Paper published in July.

In August the Sarawak branch of the Commonwealth Parliamentary Association stood host to a regional conference which was attended by representatives from Malaya, Singapore, North Borneo, Australia, Hong Kong, New Zealand and the United Kingdom. The House of Commons representatives, Miss Joan

Vickers and Mr. C.A. Howell, went on to make a short tour of the Borneo territories.

An Inter-territorial Conference was held in Kuching in October attended by Lord Perth (Minister of State), the Commissioner-General for South-East Asia (Lord Selkirk), the Deputy Commissioner-General (Sir Denis Allen), the Governor of North Borneo (Sir William Goode), the High Commissioner for Brunei (Mr. D. C. White) and other official and unofficial representatives, including Mr. Eugene Melville of the Colonial Office.

A distinguished gathering of Anglican bishops and clergy assembled in Kuching in February for the consecration of the Assistant Bishop of Borneo, the Right Reverend James Wong Chang Ling, and a meeting of the Council of the Anglican Church in South-East Asia.

Among other welcome visitors to Sarawak during the year were Mr. Lee Kuan Yew, Prime Minister of Singapore; Senator J. G. Gorton, Australian Minister for the Navy; the Right Honourable Mr. Malcolm MacDonald, High Commissioner for the United Kingdom in India; Sir Richard Hull, Commander-in-Chief, Far East Land Forces; Sir David Luce, Commander-in-Chief, Far East Naval Forces; Sir Geofroy Tory, High Commissioner for the United Kingdom in Malaya; Mr. A. R. Menzies, Canadian High Commissioner in Malaya; Mr. W. P. Maddox, Consul-General for the United States of America in Singapore; Dr. H. Roehreke, Consul-General for the Federal Republic of Germany in Singapore; Mr. J. G. Kist, Consul-General for the Netherlands in Singapore; M. G. Jenebelly, Consul-General for Belgium in Singapore; Colonel Soegih Arto, Consul-General for Indonesia in Singapore; M. N. Wilairat, Consul-General for Thailand in Singapore; M. Mathivet de la Ville Mirmont, Acting Consul-General for France in Singapore; Mr. David McNicol, Australian Commissioner in Singapore; Sir Harry Wunderley; Dr. S. H. Shaw, Geological Adviser to the Secretary of State; Mr. C. Swabey, Forestry Adviser to the Secretary of State; Mr. Nigel Morris, Deputy Inspector-General of Colonial Police; Miss F. H. Gwilliam, Woman Educational Adviser of the Colonial Office; Mr. J.A. Harrison, Security Intelligence Adviser of the Colonial Office; Sir A. MacFarquhar, Far East Regional Representative, United Nations

Technical Assistance Board; Dr. C. W. Chang, Agricultural Adviser, F.A.O.; Mr. F. L. Jones, of the International Labour Office and Professor I. G. W. Hill, Visiting Specialist.

Two companies of the 2nd/2nd Gurkha Rifles conducted a very successful training exercise in the Third Division, and ships of the Royal Navy and Royal Malayan Navy paid visits to a number of ports.

The autumn publications included two historical books on Sarawak, *The White Rajahs* by Sir Steven Runciman, and *The White Rajahs of Sarawak* by Robert Payne. At the end of the year there appeared a standard and complete work entitled *Birds of Borneo* written by Mr. B. E. Smythies, Conservator of Forests in Sarawak.

PART II

I

POPULATION

A CENSUS made in 1960 shows the following figures for the principal population groups in Sarawak.

	Population	Percentage of total population
Sea Dayak	237,741	31.9
Chinese	229,154	30.8
Malay	129,300	17.4
Land Dayak	57,619	7.7
Melanau	44,661	6.0
Other Indigenous	37,931	5.1
Other Non-Indigenous (Asian)	6,492	0.9
European	1,631	0.2
	<hr/> <u>744,529</u>	<hr/> <u>100.0</u>

The largest group, and by far the largest native group, is that of the Sea Dayaks, also called Ibans. They live in most parts of the country other than the coastal areas and parts of the extreme interior. They speak a distinctive language related to Malay.

The Land Dayaks live entirely in the First Division and are composed of a number of groups, each speaking a different language. Like the Ibans, they live in longhouses.

The Malays live in *kampongs* mainly situated in downriver areas or near the towns. They all adhere to the Islamic religion.

Melanau are partly Islamic and partly pagan or Christian. They live in *kampongs* mainly in coastal areas of the Third and Fourth Divisions. They have a distinctive language.

Classified as "Other Indigenous" are Kayans, Kenyahs, Bisayahs, Kedayans, Kelabits, Muruts and other small groups. They are mainly longhouse dwelling peoples of the interior. There are a small number of nomadic Penans in the otherwise almost uninhabited areas in the extreme headwaters of the Baram and Rejang Rivers.

The Chinese are the largest group next to the Sea Dayaks and will probably be the largest group before long. They live mainly in the towns but in the First and Third Divisions there are large groups engaged in agriculture, mainly the growing of rubber and pepper, and there are small groups of traders or isolated shopkeepers in most reasonably accessible areas. Although some Chinese have probably been living in Sarawak for hundreds of years, by far the largest number came to Sarawak in the present century or were born of such immigrants.

At the present time there is a negligible amount of immigration in the sense of persons coming to Sarawak to make their homes here, and very few indeed who leave Sarawak to make their homes elsewhere.

II

OCCUPATION, WAGES AND LABOUR ORGANISATION

THE majority of the people of Sarawak continue to be engaged in agricultural pursuits. The Natives, that is almost all the permanent inhabitants other than Chinese, are mainly rice farmers, but few depend on this alone. Large numbers own small rubber estates or sago plantations and the coastal people engage in fishing. Many are employed in timber extraction and in rubber tapping particularly during the times when they are not busy on their padi farms. The Chinese agriculturalists rely mainly on rubber and pepper. While the price for the former fell slightly towards the end of the year on average it remained at the same level as in 1959. Exports were the highest since 1950. In the early months of the year the world price for pepper dropped from the very high levels recorded at the end of 1959, but the price on the whole could be considered very satisfactory. Exports fell off but at the end of the year it was thought that a proportion of the crop still remained in growers' and dealers' hands.

Sarawak Shell Oilfields Limited is one of the largest private employing firms in Sarawak. In the field and in the refinery at Lutong they have a senior staff of forty-seven, a regional staff of 208 and 624 skilled and 344 unskilled workers, among whom Chinese, Malays, Dayaks and Indians respectively are roughly in the proportion of 19, 62½, 15 and 3½ per cent. A considerable number of skilled and unskilled workers were employed by the Company's contractors.

Rates of pay of the Oil Company's workers range from \$0.71 per hour for unskilled workers to \$1.67 per hour for the highest skilled artisans. Weekly hours of work are forty-three and a half and overtime pay is one and a half times the ordinary rate. Two weeks' annual leave with pay is given and, for sickness, full pay for the first four weeks and half pay for the next eight weeks, after which time each case is reviewed.

The Company provides housing for all its employees and maintains a high standard of health and medical services. Employees' sporting and social clubs are provided by the Company. Annually elected representatives meet the management each month to discuss working conditions, grievances and other matters affecting mutual relations and understanding. There are Malay, Chinese, Dayak and Indian representatives chosen roughly in proportion to the racial strengths. Subjects discussed during the year included housing, transport, redundancy, transfers, safety, medical and health, leave, grading of jobs, wages, allowances, overtime, houses and household facilities.

There is a training scheme run in conjunction with the associated Shell Company of Brunei, designed to give boys theoretical knowledge and training on the job and in the workshops in the electrical, radio and telephone, and mechanical trades. Selected employees are sent for training overseas.

Government technical training is carried out on a limited scale by the various technical departments. The Brooke Dockyard has seven apprentices and their training covers the repair and overhaul of marine crude oil engines, auxiliary machinery and general mechanical engineering work. The Agricultural Department has a co-educational training scheme for twenty men and eighteen women and the Public Works Department has 122 men in training in the various fields of engineering. The Sarawak Electricity Supply Company is training seven apprentices.

The construction of both public and private buildings in Kuching and the larger towns and the extensive development programme of the Government continue to absorb considerable numbers of both skilled and unskilled workers. Bauxite, sago production, logging, dock work and the distribution of import goods made up the rest of the field of organized employment in these localities.

Wage levels generally have been maintained. During 1960 the cost of living dropped slightly in both the oilfields and in Kuching. In the latter place there was a decrease of one and a half points in the price index. Comparisons of the average figures for the years 1957, 1958, 1959 and 1960 with the basic figure of 100 for August 1950 were respectively 121.19, 114.87, 112.64 and 111.12.

There was little change in the wages earned in particular industries throughout Sarawak. The daily earnings of a rubber tapper ranged from \$2.50 to \$6.80. Added to this were perquisites in the form of free housing and other amenities. Carpenters earn from \$4.50 to \$10.00. The rate in the sawmills varied from a minimum of \$2.80 to \$13.00 a day and for road and building construction workers it ranged from \$3.40 to \$14.00. Wharf labourers were earning from \$4.00 to \$12.00 per day during the year.

Hours of work in the main industries remained unchanged and are governed by the eight-hour day and six-day week as provided for in the Labour Ordinance.

Considerable importance is attached by Government to promoting the healthy growth of the trade unions in the territory and the Commissioner of Labour and the Registrar of Trade Unions are in close touch with these for the purpose of advising them on sound trade union lines. District Officers are Deputy Commissioners of Labour and responsible for enforcing labour legislation and the inspection of industrial undertakings in their areas. The Labour Ordinance, embodying the principles of the International Labour Conventions, protects workers in matters relating to hours of work, health conditions, the age of admission to employment, medical treatment, provision of written contracts of employment, notice pay, and conditions of extra-territorial recruitment.

Three trade unions were registered in 1960, three agreed to amalgamate and the total numbered thirty-eight at the end of the year. The older and bigger unions continue to develop satisfactorily, but some of the smaller ones, more in the nature of guilds than trade unions, are too limited in numbers and scope to be very effective.

Industrial disputes are infrequent and no stoppage occurred throughout the year under review. Minor wage disagreements are usually settled without difficulty following reference to the Labour Department. The demand for labour is still considerable and in consequence wages in general tend to remain at a fairly high level.

III

PUBLIC FINANCE AND TAXATION

REVENUE AND EXPENDITURE

SARAWAK'S budget is divided into two parts, Recurrent and Capital. The Part I (Recurrent) budget includes the cost of services which are an annual commitment recurring indefinitely. The aim is to keep this expenditure within the country's reliable recurrent revenue. Revenue accruing in good years and of a type which cannot be relied on, e.g. extra export duty on rubber when world prices are high, is transferred to the Capital Fund and used for capital expenditure (Part II). This facilitates long-term development planning. In addition to these contributions from annual revenue, the Capital Fund derives revenue in the form of grants from the Colonial Development and Welfare Fund, contributions from Sarawak's surplus balances and from funds raised by loans.

Total Revenue and Expenditure for 1959 were as follows:—

Revenue \$70,371,167

Expenditure—Part I \$64,944,932 (including contribution of
\$14,808,786 to Capital Account)

Expenditure—Part II \$27,469,167

Revised estimates of total Revenue and Expenditure for 1960 are as follows:—

Revenue \$81,664,600

Sarawak visitors (the Datu Bandar, Temenggong Oyong Lawai Jau and Temenggong Jugah) call on the Australian Prime Minister, Mr. Menzies, during their visit to that country as guests of the Australian Government. (*Australian Information Bureau*)

Overleaf:

The Chief Secretary, Mr. F. D. Jakeway, inspecting the Sarawak Rangers at Camp Baird in Johore Bahru. (*British Army Public Relations*)

The Census Office in the old Sylvia Cinema building. (S.I.S.)









Expenditure—Part I \$81,173,000 (including estimated contribution to Capital Account of \$24,500,000)

Expenditure—Part II \$34,606,260.

The estimated General Revenue Balance at 31st December, 1960, was \$38,060,832.

REVENUE

The main heads of Revenue are:

<i>Ordinary Revenue</i>	<i>Revised Estimate 1960</i> \$	<i>Actual 1959</i> \$
Customs	47,520,000	37,883,903
Licences, Taxes and Internal Revenue	3,553,300	3,858,786
Fees of Court or Office, etc.	891,800	1,056,046
Departmental Services	2,371,200	2,044,323
Reimbursements	934,600	1,493,991
Land	1,113,000	1,120,019
Forestry	3,958,500	3,440,895
Posts and Telegraphs	2,348,400	1,929,982
Marine	573,500	587,246
Revenue from Government Property	1,325,000	1,604,602
Interest	4,329,000	3,441,306
Income Tax	11,700,000	10,101,282
Miscellaneous	286,200	—
	(80,904,500)	(68,562,381)

Extraordinary Revenue

Land Sales	350,000	660,906
Loan Repayments	201,200	471,860
C.D. and W. Grants	200,000	146,680
Miscellaneous	8,900	529,340
	(760,100)	(1,808,786)
	<hr/>	<hr/>
	\$81,664,600	\$70,371,167
	<hr/>	<hr/>

Long Akah airstrip in the Ulu Baram to which regular services were commenced during the year. (S.I.S.)

EXPENDITURE

Heads of Expenditure are :

PART I

<i>Head</i>	<i>Revised Estimate 1960</i>	<i>Actual Expenditure 1959</i>
	\$	\$
Governor	177,000	162,983
Rajah's Dependants	30,000	29,773
Administration	2,534,500	2,821,963
Agriculture	1,601,500	1,438,098
Audit	153,000	153,667
Boys' Home	51,500	40,542
Broadcasting	719,500	664,645
Civil Aviation and Meteorological Service	568,000	507,690
Community Development	—	27,729
Constabulary	4,344,000	4,119,496
Co-operative Development	269,500	264,174
Defence and Internal Security	40,000	16,294
Education	9,867,000	9,502,587
Forestry	670,000	642,473
Geological	370,500	341,033
Immigration and National Registration	71,000	75,836
Information Service	301,000	202,280
Judicial	418,000	410,380
Lands and Surveys	2,813,000	2,385,454
Land Transport	90,000	62,915
Legal	138,500	159,757
Legal Aid	500	—
Local Authorities	2,591,500	1,723,856
Marine	1,654,000	1,519,843
Medical	6,148,000	5,626,127
Miscellaneous Services	2,020,000	2,203,029
Municipality of Kuching	560,000	536,755
Museum	164,000	147,233
Pensions and Gratuities	3,180,500	2,777,672
Posts and Telegraphs	2,648,000	2,410,060
Printing	693,000	604,702
Prisons	339,500	311,549
Public Works Department	2,297,000	1,591,784
Public Works Recurrent	4,730,000	3,559,203

<i>Head</i>	<i>Revised Estimate 1960</i>	<i>Actual Expenditure 1959</i>
	\$	\$
Secretariat	896,000	803,250
Trade and Customs	1,471,500	1,373,025
Treasury	505,500	531,367
Debt Charges	1,226,000	195,216
Inland Revenue	182,500	—
Contribution to Capital Account	24,500,000	14,808,786
Interest	116,500	191,705
Labour	21,500	—
	<hr/>	<hr/>
	\$81,173,000	\$64,944,932
	<hr/>	<hr/>

PART II

Agriculture	5,739,791	2,686,208
Broadcasting	107,076	—
Civil Aviation	405,815	419,807
Community Development	288,468	220,441
Education	2,788,675	2,715,062
Fisheries	5,001	14,705
Forestry	45,123	—
Fuel and Power	500,000	2,100,000
Geological	30,840	56,939
Government Buildings	1,103,293	421,233
Housing	1,337,583	1,313,918
Land	530,491	285,455
Medical	2,064,460	1,565,757
Port Development	2,690,398	3,812,830
Research and Investigations	114,488	32,224
Roads and Bridges	7,210,096	5,504,774
Social Welfare	6,756	66,286
Telecommunications	433,951	879,019
Town Development	618,835	373,158
Water Supplies	1,002,409	1,081,242
Waterways	72,938	14,051
Development Staff	166,618	277,068
Plant and Equipment	1,673,638	683,401
Public Works Non-Recurrent	4,511,602	1,875,806
Other Capital Expenditure	1,033,279	811,544
Loans	124,636	258,239
	<hr/>	<hr/>
	\$34,606,260	\$27,469,167
	<hr/>	<hr/>

Public Debt

Public debt amounted to \$25,278,500. The public debt is comprised of the following:—

- (a) Debenture Bonds issued at \$10 each and redeemable at \$14 each, the bonds are drawn annually and will be redeemed in full by 1968.
- (b) 5½% Registered Stock (1966/1968).
- (c) 4¼% Stock (1975/1980).

The proceeds from loans have been spent on development works.

Customs Tariff

The Customs tariff is divided into two parts: import duties on tobacco, liquor, petroleum products, textiles, manufactured articles, and a variety of other commodities; and export duties on rubber, pepper, jelutong, illipe nuts, copra, damar, bauxite, edible birds' nests and sea produce.

During the year import duty was introduced on spare and component parts and accessories of goods at the same rates as for the goods themselves, on engines for industrial use, and on cotton yarn. Import duty on kerosene was reduced from 15 cents to 5 cents a gallon, while the list of duty-exempted goods was extended to include machinery and equipment for use in the extraction of timber and minerals so as to stimulate investment in these industries.

To stimulate the processing of copra into coconut oil the export duty on coconut oil was removed, while that on copra was retained. Duties on white and black pepper were altered to levy less when prices are low and more when they are high in order to assist the regular planter in bad times and deter the speculative planter when prices are high. Wet ribbed sheet rubber now attracts a duty which is one and a quarter times the duty payable on other rubber. The duty on jelutong was reduced.

Excise Duty

Excise duty is levied on locally manufactured cigarettes, arrack, certain wines, matches and petroleum products. Duty on kerosene was reduced from 15 cents to 5 cents per gallon.

Stamp Duty

Stamp duties are imposed on all documents required to be stamped under the provisions of the Stamp Ordinance (Cap. 17). They include duty on cheques, bills of exchange, promissory notes, agreements, contracts, affidavits, declarations of trust and instruments creating an annuity.

Income Tax and Trade Licence Fees

Income tax was levied only on the income of registered companies and at the rate of thirty per cent of profits. A bill was passed at the end of the year providing for the introduction of personal income tax as from 1st January, 1961, in the form of a salaries tax, a profits tax, a property tax and an interest tax. The implementation of the property tax is to be deferred while interest tax will be introduced at the rate of five per cent. The profits tax will continue at the rate of thirty per cent in respect of registered companies but will be at the rate of five per cent for unincorporated businesses. Salaries tax, which is limited to a maximum of five per cent of assessable income, will be at the following rates on chargeable income:—

On the first \$5,000	4 per cent
On the next \$5,000	5 " "
On the next \$5,000	6 " "
On the next \$5,000	7 " "
On the next \$5,000	8 " "
On the next \$5,000	10 " "
On the next \$5,000	15 " "
On the next \$5,000	20 " "
On the next \$5,000	25 " "
On chargeable income in excess of \$45,000	30 " "

There is a tax-free allowance of \$3,000. In addition there are tax-free allowances, subject to a maximum of one-third of total income, including a wife allowance of \$2,400; and children's allowances up to a total of \$2,100.

Profits tax on registered companies will continue to be thirty per cent.

Trade licence fees were payable during 1960 on a sliding scale thereby applying direct taxation to business enterprises not subject to income tax. All such businesses will be subject to income tax in 1961; trade licence fees at reduced rates will be payable but will be deductible as business expenses for the purpose of assessing profits tax.

Miscellaneous Licences and Fees

These include:—

- Rubber Dealers and Exporters Licences
- Pilotage Fees
- Fees for Registration of Deeds
- Bankruptcy Fees
- Poisons Licences
- Fees for Importation of Animals
- Auctioneers and Valuers Licences
- Sulphurous and Arsenical Ores Licences
- Pepper Dealers and Exporters Licences
- Hypodermic Syringes Licences
- Printing Presses Licences
- Church and Civil Marriage Licences
- Bills of Sale.

Customary Tax

In former days the Rajahs of Sarawak instituted a system of head and door tax paid by native peoples. These have now almost entirely been replaced by rates levied by local authorities.

Entertainment Tax

A tax is charged on all payments for admission to entertainments.

Estate Duty

Estate Duty is charged upon all estates above \$1,000. Rates are as follows:—

Where the value of the estate exceeds

\$	1,000 but does not exceed	\$	3,000	1	per cent
\$	3,000 „ „ „ „	\$	5,000	1½	„ „
\$	5,000 „ „ „ „	\$	7,500	2½	„ „

\$ 7,000 but does not exceed	\$ 10,000	3½ per cent
\$ 10,000 ,,, ,,, ,,,	\$ 20,000	5 ,,, ,,,
\$ 20,000 ,,, ,,, ,,,	\$ 40,000	7½ ,,, ,,,
\$ 40,000 ,,, ,,, ,,,	\$ 70,000	10 ,,, ,,,
\$ 70,000 ,,, ,,, ,,,	\$ 100,000	15 ,,, ,,,
\$ 100,000 ,,, ,,, ,,,	\$ 150,000	21 ,,, ,,,
\$ 150,000 ,,, ,,, ,,,	\$ 200,000	22 ,,, ,,,
\$ 200,000 ,,, ,,, ,,,	\$ 250,000	23 ,,, ,,,
\$ 250,000 ,,, ,,, ,,,	\$ 300,000	24 ,,, ,,,
\$ 300,000 ,,, ,,, ,,,	\$ 350,000	25 ,,, ,,,
\$ 350,000 ,,, ,,, ,,,	\$ 400,000	26 ,,, ,,,
\$ 400,000 ,,, ,,, ,,,	\$ 450,000	27 ,,, ,,,
\$ 450,000 ,,, ,,, ,,,	\$ 500,000	28 ,,, ,,,
\$ 500,000 ,,, ,,, ,,,	\$ 600,000	29 ,,, ,,,
\$ 600,000 ,,, ,,, ,,,	\$ 700,000	30 ,,, ,,,
\$ 700,000 ,,, ,,, ,,,	\$ 800,000	31 ,,, ,,,
\$ 800,000 ,,, ,,, ,,,	\$ 900,000	32 ,,, ,,,
\$ 900,000 ,,, ,,, ,,,	\$1,000,000	33 ,,, ,,,
\$1,000,000 ,,, ,,, ,,,	\$1,500,000	34 ,,, ,,,
\$1,500,000 ,,, ,,, ,,,	\$2,000,000	35 ,,, ,,,
\$2,000,000 ,,, ,,, ,,,	\$2,500,000	36 ,,, ,,,
\$2,500,000 ,,, ,,, ,,,	\$3,000,000	37 ,,, ,,,
\$3,000,000 ,,, ,,, ,,,	\$4,000,000	38 ,,, ,,,
\$4,000,000 ,,, ,,, ,,,	\$5,000,000	39 ,,, ,,,
Over \$5,000,000		40 ,,, ,,,

IV

CURRENCY AND BANKING

Currency

THE legal tender of Sarawak is the Malayan dollar. The currency in circulation consists of notes and coin issued by the Boards of Commissioners of Currency, Malaya and British Borneo, stocks for circulation in Sarawak being held by the Sarawak Government Treasury in Kuching.

The par value of the Malayan dollar is two shillings and four pence sterling.

At the 31st December, 1960, the currency in circulation amounted to \$62,952,714.

Banking

The following banks operate in the territory:—

The Chartered Bank, with offices in Kuching, Sibu, Miri, Sarikei and Simanggang.

The Hongkong and Shanghai Banking Corporation, with branches in Kuching and Sibu.

The Overseas Chinese Banking Corporation at Kuching.

There are four Chinese trading banks—the Bian Chiang Bank and Kwong Lee Bank at Kuching, the Wah Tat Bank at Sibu, and the Hock Hua Bank at Sibu. The latter opened a branch in Kuching during the latter half of 1960.

Post Office Savings Bank

The number of depositors in the Post Office Savings Bank at the end of 1960 was 8,922 as compared with 8,485 at the end of 1959. The amount of credit to depositors was \$3,797,974 as against \$3,757,378 in 1959.

During the year withdrawals \$1,248,555 exceeded deposits by \$46,834.

A new Currency Agreement was negotiated during the year for introduction on 1st January, 1961.

V

COMMERCE

SARAWAK is essentially an agricultural country producing and exporting primary products and it is largely from the export of such produce that the national income is derived. In exchange Sarawak imports foodstuffs for the expanding population and almost all other consumer and capital goods. There is little industrial activity though some processing of local products is carried out before export.

The General Economy and its Main Characteristics

The health of the economy depends to a great extent upon the three major exports—rubber, pepper and timber. Their importance is reflected in the high proportion of Sarawak export proceeds that they earn. In 1960 their export earnings reached \$183,247,776, or about ninety-one per cent of the total export earnings of the country, excluding the re-export of petroleum, crude or refined.

This heavy dependence on primary exports means that the economy is very vulnerable to international fluctuations in commodity prices. A slight variation in production and employment in major industrial countries can lead to serious repercussions on the export prices of primary products and the export earnings of Sarawak. This dependence means in effect that when prices of these primary products are high, the exports, export earnings and revenue of the country increase, and when there is a price slump the export proceeds and revenue follow suit.

This instability arising from over dependence on a few export industries has retarded the economic development of Sarawak. In order to remedy this state of affairs attempts have been and are being made to diversify the economy by encouraging a measure of industrialization, to explore and

develop the mineral potentiality of the country, and to iron out serious fluctuations of commodity prices by instituting commodity storage schemes.

THE COMPOSITION OF TRADE

Exports

Exports were valued at \$488,290,454 for 1960 compared with \$533,390,873 for 1959. The major items shown in comparison with 1959 are:—

SARAWAK'S EXPORTS

	1960	1959
Petroleum—Crude	\$146,703,955	\$198,327,096
Refined	141,294,727	152,855,663
Rubber	122,440,482	94,898,236
Timber	43,607,088	31,040,471
Pepper	17,200,206	18,097,820
Illipe-nuts	—	19,976,395
Bauxite	4,995,202	3,842,537
Sago Flour	2,788,335	2,399,769
Jelutong	800,791	1,557,072
Copra	—	54,694
Sundries (including re-exports)	8,459,668	10,341,120

The oil shown above is largely re-exported. Crude oil won in Brunei is piped to, processed and refined at the Lutong refinery in Sarawak. This, with the oil obtained from the Miri field in Sarawak valued for 1960 at \$2,743,803 was re-exported. The total exports, exclusive of petroleum re-exports but including Miri oil production, were valued at \$203,035,575.

Sago flour is now a duty-free export. An export of 19,688 tons was valued at \$2,788,335 against 17,780 tons valued at \$2,399,769 in 1959.

Copra. No exports of copra were recorded in 1960 and only eighty-four tons valued at \$54,694 were exported in 1959. This crop is now entirely absorbed by local vegetable oil factories, and indeed a substantial amount of copra is imported for processing into oil.

Illipe-nuts as an export are irregular and unpredictable and in the year under review no exports were recorded. Conversely in 1959 a record crop of 22,006 tons valued at \$19,976,395 was exported.

Jelutong exports were 263 tons valued at \$800,791 as against 396 tons valued at \$1,557,072 in 1959.

Timber finds a ready market and is a most important item in the economy of Sarawak. 361,663 tons valued at \$43,607,088 were exported against 317,244 tons valued at \$31,040,471 in 1959. Of the total exported 195,693 tons were logs valued at \$12,879,018 and 165,970 tons sawn timber valued at \$30,728,070.

Bauxite deposits in the Sematan area are being worked by Sematan Bauxite Limited formed in 1956. Exports of bauxite amounted to 260,120 tons valued at \$4,995,202 compared with 202,925 tons worth \$3,842,537 in 1959.

Rubber. Export earnings of rubber at \$122,440,482 were well over half the total export earnings of the country (excluding Brunei oil). Export duties on rubber at \$16,760,171 were about 84.4 per cent of the total export duties for the year. As a result of good prices during the year, the export of rubber increased to a record of 49,961 tons, an increase of 6,125 tons over the previous year. The average price of rubber rose from \$2,165 per ton in 1959 to \$2,451 per ton in 1960.

Pepper. Exports of white pepper were 3,394 tons valued at \$15,180,009 compared with 6,562 tons valued at \$15,616,475 in 1959. The average price per ton increased from \$2,380 in 1959 to \$4,473 in 1960. While export tonnage decreased by 3,168 tons the value only decreased by \$436,466. Black pepper exports decreased from 1,788 tons valued at \$2,481,345 in 1959 to 705 tons valued at \$2,020,197 in 1960. The price increased from \$1,388 per ton to \$2,866 per ton. The large difference in price between white pepper and black encourages growers to concentrate on white.

Imports

Imports were valued at \$444,922,798 compared with \$455,065,641 for 1959. Excluding crude oil, valued at \$240,065,872, they were \$204,856,926. This was an increase of \$43,984,045 compared with 1959 and was due mainly to increased export earnings.

These are the details:—

	1960	1959
Food, excluding rice	\$ 45,308,284	\$ 39,121,258
Rice	14,140,607	16,650,163
Beverages, alcoholic	2,996,565	2,509,708
Beverages, non-alcoholic	292,732	194,377
Cigarettes and tobacco	6,650,334	6,435,782
Crude materials, inedible, except fuels	11,042,704	6,784,864
Mineral fuels—		
Crude petroleum	240,065,872	294,192,760
Refined and its related materials	11,017,969	10,888,926
Animal and vegetable oils and fats	469,363	665,032
Chemical	15,152,064	11,621,061
Manufactured goods, classified chiefly by materials	30,103,885	25,068,198
Machinery and transport equipment	26,085,183	21,561,743
Miscellaneous manufactured goods	13,374,145	12,159,430
Miscellaneous transactions n.e.s.	28,223,091	7,212,339

The prices of certain basic foodstuffs compared with those of 1959 were as follows:—

(Declared value per ton)

Commodities	1960	1959
Rice	\$ 314.32	\$ 329.81
Flour	277.29	308.49
Sugar	328.67	319.48
Salt	56.50	57.24
Milk	1,254.38	1,298.23

Cargo Tonnage

The tonnage discharged and loaded, including oil in bulk, was 5,502,054 compared with 6,494,813 for 1959.

	tons	Discharged		Loaded	
		Cargo	Oil in bulk	Cargo	Oil in bulk
Kuching	140,940	25,956	44,304	—	—
Kuching	—	—	—	—	—
Other Ports	—	—	—	—	—
Sibu	81,207	13,473	31,219	—	—
Sarikei	9,651	230	3,133	—	—
Binatang	3,301	—	2,345	—	—
Tanjong Mani	361	—	332,702	—	—
Miri	15,144	—	14,369	4,427,073	—
Bintulu	361	—	14,319	—	—
Baram	1,766	—	1,018	—	—
Limbang	3,564	—	5,087	—	—
Lawas	2,435	—	9,795	—	—
Sundar	476	—	9,573	—	—
Total	259,206	39,659	776,116	4,427,073	—

Balance of Trade

The total volume of trade, including the value of crude oil imports from Brunei, decreased by \$55,243,262 to \$933,213,252 from the 1959 total of \$988,456,514. The general trend of the total volume of trade as shown below has been increasing over the period 1950-1960, if oil imports in crude form from Brunei and oil re-exports are taken into consideration. The visible trade balance for the country too has been favourable for the years shown below:—

TOTAL TRADE 1950-60

	Total Exports	Total Imports	Total Trade	Visible Balance of Trade
Year	\$	\$	\$	\$
1950	374,586,491	289,330,704	663,917,195	+ 85,255,787
1951	508,349,436	383,745,457	892,194,893	+ 124,603,979
1952	438,563,317	382,945,953	821,509,270	+ 55,617,364
1953	424,728,257	394,912,338	819,640,595	+ 29,815,919
1954	425,969,557	397,826,075	823,795,632	+ 28,143,482
1955	477,460,040	442,347,927	919,807,967	+ 35,112,113
1956	487,000,860	463,886,635	950,887,495	+ 23,114,225
1957	499,534,619	463,429,459	962,964,078	+ 36,105,160
1958	463,736,226	433,786,897	897,523,123	+ 29,949,329
1959	533,390,873	455,065,641	988,456,514	+ 78,325,232
1960	488,290,454	444,922,798	933,213,252	+ 43,367,656

Disregarding the imports of crude oil from Brunei and the export and re-export of both crude and refined products the total volume of trade for 1960 amounted to \$407,892,501, an increase of \$64,811,506 over the figure for 1959 which was \$343,080,995. The visible trade balance was unfavourable to the tune of \$1,821,351.

The following table shows the exports and the imports for the period 1950-60 together with the trade balances:—

TOTAL TRADE 1950-60

<i>Year</i>	<i>Total Exports*</i>	<i>Total Imports**</i>	<i>Total Trade</i>	<i>Visible Balance of Trade</i>
	\$	\$	\$	\$
1950	150,026,931	90,251,992	241,278,923	+ 59,774,839
1951	212,193,376	120,931,843	333,125,219	+ 91,261,533
1952	140,196,527	112,261,699	252,458,226	+ 27,934,828
1953	134,237,277	130,951,594	265,188,871	+ 3,285,683
1954	136,013,176	135,479,268	271,492,444	+ 533,908
1955	159,797,145	148,891,946	308,689,091	+ 10,905,199
1956	134,054,507	150,147,126	284,201,633	- 16,092,619
1957	126,202,648	143,858,961	270,061,609	- 17,656,313
1958	119,399,005	132,600,108	251,996,360	- 13,201,103
1959	182,208,114	160,872,881	343,080,995	+ 21,335,233
1960	203,035,575	204,856,926	407,892,501	- 1,821,351

*Exports above include oil produced from the Miri field which in 1960 was valued at \$2,743,803 but exclude oil re-exports, that is, oil produced in Brunei but piped to be refined at the Lutong refinery situated in Sarawak.

**Imports exclude petroleum imports from Brunei.

Customs Revenue

Customs revenue collections for the year totalled \$45,110,279 against \$38,058,996 for 1959. Export duties were \$19,856,054 compared with \$16,791,760 for 1959, and import duties were \$25,254,225 compared with \$20,016,252 for 1959.

Excise

Excise revenue is derived mainly from three distilleries. Other sources of excise revenue are provided by petroleum products, cigarettes and a match factory. The total revenue from excise duties for the year under review reached \$1,668,153 as against \$1,250,983 in 1959.

VI

LAND UTILISATION AND TENURE

PRIMARY forest still covers about three-quarters of Sarawak and agriculture is confined to the remaining area of some 11,500 square miles in which the density of population averages about sixty-four persons to the square mile.

Although, basically, Sarawak is an agricultural country, its soils are generally poor and often of extreme acidity, and it possesses few fertile areas of rich alluvium or volcanic soils which are a feature of parts of South-east Asia.

Rice is the staple food of most of the races, and about three-quarters of the agricultural area, or eighteen per cent of the country's total area, is used for the cultivation of hill-padi by the indigenous inhabitants who follow a traditional but wasteful bush-fallow system of shifting cultivation.

In many areas, an increasing population and a gradual degeneration of the soils, and, to a lesser extent, the use of more land for scattered patches of settled cultivation has caused the land under bush-fallow to be used more frequently than is necessary for an adequate regeneration of secondary forest and extensive areas are rapidly becoming useless for agriculture. The production of rice by this method of farming seldom enables the farmers' standard of living to rise above subsistence level.

Settled cultivation occupies only about six per cent of the country and rubber, pepper, sago and coconuts in this order are the main cash crops. Wet padi is also grown on river levees, in the deltas and on flat coastal land but only in a few districts is padi regarded as a cash crop.

Land Tenure

The majority of Native farming lands are held under Native customary tenure and it continues to be the policy of Government to respect and safeguard Native customary rights which are

recognised to be a fundamental factor in the economy of communities which depend almost entirely on the immediate resources of the land.

Sarawak's land laws have always recognised the systems of Native land tenure without attempting to define or codify the principles of individual or communal rights to land which, in general, conform to the pattern of Indonesian customary law.

All land in Sarawak is vested in the Crown and a Native, having rights of user only, is regarded as a licensee of the Crown. Rights to land were originally gained by the person who first cleared the land of virgin jungle and they are normally inherited by his descendants subject to restrictions as to disposal, periodic use and requirements of the individuals and of the community. The pattern of Native customary rights is extremely complex and many of the Iban, Kayan and Kenyah farming areas, over which rights are claimed, were occupied by these races only after the former occupants had been driven out as a result of inter-tribal warfare. Land disputes, which are dealt with in the Native Courts, are, therefore, often complicated by the differences in Native customary law between the parties concerned.

The provisions for the issue and registration of title to land under the Land Code now in force apply, at present, to about one-quarter of the country's occupied area. Leases of Crown land are limited to a period of sixty years, or, if replacing Native customary tenure, to ninety-nine years but, under previous land laws, some former leases and grants were issued for longer periods of up to 999 years; many of the old titles take the form of occupation tickets and certificates which in due course will be replaced by leases. There is no freehold land in Sarawak.

So far, some 91,000 leases of Crown land and another 70,000 temporary titles of various types, in all covering about 1,250 square miles of land, have been issued up to the present time..

Land Classification

All land in Sarawak is classified as Mixed Zone Land, Native Customary Land, Native Area Land, Reserved Land, and Interior Area Land and with one exception changes in this classification

can only be approved by the Governor in Council. The Director of Lands and Surveys may, with the approval of the Resident of a division reclassify Interior Area Land as Native Area Land.

A person of any race may hold a title or acquire an interest in land in areas classified as Mixed Zone Land and totalling about 4,400 square miles but Native Area Land, amounting to some 2,500 square miles, may be held only by a native of Sarawak. All land held under title falls in one of these categories.

Native Customary Land comprises all land held under Native customary tenure and includes small areas declared to be Native Communal Reserves. Forest reserves and protected forests, land used by Government for public buildings, roads, agricultural stations and many other purposes, fall within the classification of Reserved Land. The balance of land is classified as Interior Area Land and comprises mainly land under primary forest and other unoccupied land over which no customary rights exist. No new rights can be established to this type of land unless it is occupied with a permit from the District Officer or, upon reclassification as Native Area Land or Mixed Zone Land, by the issue of a title.

A map showing the distribution of the various categories of land appears opposite page 40.

Legislation

In 1863, the Rajah in Council introduced the first land laws under which land could be alienated under grant or long-term lease. This and all subsequent land legislation was embodied in 1932 in the Land Ordinance. This was followed, a year later, by the Land Settlement Ordinance which provided for the settlement of all rights to land and the establishment of a new Land Register and was based broadly on a form of the Torrens System, introduced by Sir Robert Torrens in South Australia in 1858, under which ownership and other restrictive rights over units of land, which have been precisely defined by exact survey, are recorded in a Register which guarantees title to the owner and in which subsequent dealings in the land are recorded.

When land administration was resumed during the immediate post-war years, it was found necessary to put the classification of lands, previously carried out as an administrative

measure, on a legal footing and, in 1949, the Land (Classification) Ordinance came into effect.

Work began, in 1954, on a new Land Code to consolidate and broaden the scope of all previous land legislation with many major amendments and additions and the present Land Code came into force in 1958.

During the three years of land administration under the Code many serious defects have become apparent and it is now a matter of some regret that the preparation of the Code was not preceded by declaration of general land policy and its introduction delayed until the Land and Survey Department could be re-organised and strengthened to enable it efficiently to implement the provisions of the Code.

The urgent need for a broad land policy and the necessity for a complete review of existing land use cannot be overstressed. It will be necessary for Government to reconsider its attitude towards the system of Native customary tenure in the light of changing agricultural trends and the need for sound agricultural development on a greater scale in the interests of the country's future revenues as well as a substantial improvement in the standard of living, particularly of those whose livelihood depends upon agriculture.

Organisation

The Land and Survey Department is responsible for the alienation of Crown land under the provisions of the Land Code and directions of the Governor in Council, where appropriate; for the issue and registration of titles and other dispositions affecting land and for the collection of land rent and other fees. It is responsible also for all trigonometrical, topographical and cadastral surveys and mapping, town and country planning and valuation.

In the absence of a Mines Department, the Director, as Chief Inspector of Mines, is responsible also for the administration of the Mining Ordinance as far as the issue of mining leases, prospecting licences, and other matters affecting mining land are concerned.

The headquarters of the Department is at Kuching and divisional offices, which consist of the Land Branch, Survey

Branch and a Land Registry, are maintained at Kuching, Simanggang, Sibu and Miri. The preparation of land deeds and applications for land, the collection of land rent, and the delivery of titles are undertaken also in district and sub-district offices throughout the country.

Government has accepted the principle that a substantial increase in staff is necessary for the efficient running of the Department which for some time has been incapable of carrying out efficiently its normal work and the increasing demands being made upon it. The expansion of the Department has not kept pace with development and with the already expanded Agricultural and Public Works Departments and others with which it is required to work in close co-operation.

In 1960 the first instalment of additional staff was approved and amounted to increases of about forty per cent in Divisions II and III and fifteen per cent in Divisions IV and V. For 1961 the number of posts in Divisions I—III have been more than doubled and, in Divisions IV and V, increased by about thirty-five per cent.

The shortage and inadequacy of the present accommodation has already become a serious problem but plans are in hand to meet this deficiency; a new headquarters office building in Kuching is in the course of erection and should be ready for occupation about the middle of 1961 and, at the Divisional headquarters, an increase in office accommodation has either been approved or is under consideration.

Recruitment and Staff Training

Whilst the recruiting position for junior technical staff has improved slightly there is little evidence to indicate any great change in the outlook of school-leavers who have reached the necessary educational standard and the majority still seek office jobs and show no enthusiasm for field work of any kind.

Early in 1960, a senior officer was appointed to take charge of training and a survey school was started to provide long-needed training for recruits and junior staff. Sixteen junior officers were given four months' training in basic survey work but demands for survey work of all kinds prevented a longer course. In June, a six to seven months' basic survey course was

started for eleven new recruits, of whom two resigned soon after the commencement of the course and two others requested to be transferred to drawing-office work.

Two officers continued training in New Zealand during the year under Colombo Plan scholarships. One is undergoing full professional training culminating in the Australasian Licensed Surveyors' Examination and the other for the Diploma in Urban Valuation. Both have made good progress and are expected to obtain their full qualifications in 1961.

Two other serving officers, awarded a correspondence course in surveying under the Colombo Plan, have continued their studies. One has made very good progress and has successfully completed two-thirds of the written papers of the Australasian Licensed Surveyors' Examination whilst the other officer has now completed twenty-five per cent of the papers.

One officer returned from the Kuala Lumpur Technical College, Malaya, in July having completed successfully the diploma course in surveying. Two still remain at the College and are due to complete the course in 1962 and 1963.

Agricultural Settlement

One of the main aims of present land policy is that Crown land must be alienated to the best advantage and economic benefit of the country. More than 3,000 square miles of the country, including some of the more accessible areas, in which acid terrace soils occur, are regarded as unsuitable for agriculture and much of the land which may be suitable for agricultural development lies in remote and, at present, inaccessible areas. For these reasons the demand for new agricultural land cannot be met but the maximum effort is being made in all divisions to make available for alienation as much land as possible for agricultural development. In areas where it is thought that native customary land may be surplus to requirements detailed investigations and surveys have been made. Full use is being made of the soil surveys now being carried out by the Department of Agriculture in various parts of the country.

In the First Division, land use and Native customary right surveys have been concentrated mainly in areas where preliminary investigations have shown that existing and potential

wet-padi land, which is thought to be capable of intensive development, can be made available as an alternative to the impoverished hill-padi lands. These in turn will, it is hoped, be used eventually only for settled cultivation. This work is being carried out in close co-operation with the Department of Agriculture and is in accordance with its policy. A scheme for the settlement, initially, of some 160 families on economic holdings with a wet padi/rubber economy, assisted by long-term loans, was launched by the Department of Agriculture towards the end of the year but it is too early yet to judge its success or otherwise. In eight widely-scattered areas of the division, more than eight hundred smallholders' lots will become available, mainly for new coconut and rubber smallholdings.

In the Simanggang area of the Second Division, surveys for the development and subdivision of about 5,000 acres of Crown land have continued and it is planned to issue titles over part of this land in 1961.

In the Third Division there has been no slackening in the demand by the Chinese for more land suitable for high-yielding rubber and it is thought that no less than 30,000 acres would be taken up immediately if it were available. Many potential applicants are known to be smallholders who have old rubber gardens on swamp land which is unsuitable for replanting but there appears to be a potential demand from would-be investors seeking opportunities for investment in agriculture. Surveys for the reclassification and alienation of 4,655 acres in the Oya Road area have continued and the extinguishment of native customary rights, followed by planned alienation, will be carried out in 1961.

Although the Fourth and Fifth Divisions have, in the past few years, accepted considerable numbers of Chinese settlers, mainly from the Third Division, the situation is different in that there is little evidence of any serious land pressure by any section of the population and it is fairly certain that considerable tracts of suitable land can be made available for agricultural development; much preliminary work has been done with a view to planned alienation but progress has been limited by the inadequacy of staff. The possibilities of the reclassification of nearly 70,000 acres in various parts of the Fourth and Fifth

Divisions are being examined and, of the two areas being considered for reclassification as Mixed Zone Land, one of 11,300 acres lies in the coastal area south of Miri, the other of 30,000 acres across and to the south of the Lawas-Trusan road.

Several small areas were reclassified during the year. 525 acres, formerly Forest Reserve, at Marudi are being alienated to Chinese for smallholdings and, following approval for alienation, about 1,200 acres of land in Ulu Meragang which is to be developed as an estate, mainly for rubber, has been reclassified as Mixed Zone Land. Near Bintulu, 2,250 acres of land have been reclassified as Native Area Land primarily to allow Malays to take up land for subsidised coconut planting.

A total of 6,935 formal Applications for Land were received in 1960 and it is certain that the figure would be much higher if more Crown land had been immediately available.

In all divisions the majority of applications were for isolated lots of Crown land and for title to land in limited areas where sporadic settlement of Native customary right is practicable. Applications for land for planting rubber and coconuts under the Government-subsidised planting schemes for smallholders have been dealt with as speedily as possible.

Settlement of Rights

It continues to be the policy of Government to safeguard Native tradition and rights and it is intended gradually to replace Native customary tenure by registered title to land. The scale on which the systematic settlement of rights and the admission of the land to the Register is still limited by the staff available. It appears that Natives are beginning to appreciate the value of title to land but the payment of land rent, coupled with the recent revisions, is one of the main reasons for their hesitation in requesting title to replace their Native customary tenure and applications for title are confined mainly to areas of Mixed Zone Land in which a Native can transfer his land to an alien.

This trend is recognised by the present policy of withholding any large-scale land reclassification until Native customary rights can be fully investigated and, where possible, extinguished over land found to be surplus to the communities' requirements.

During 1960, land use surveys combined with investigations of Native rights have been made in many parts of the country and it is intended to continue this work in 1961 to the limit of available staff. Only sporadic settlement of rights has, therefore, been carried out in conjunction with the routine surveys of land under application with the exception of two small programmes of systematic settlement. In the First Division, claims were accepted and investigated in an area near Batu Kitang for which intended settlement was notified in 1958 but it was found necessary to defer action until the completion of additional land use and soils investigations. In the Fifth Division, a settlement unit was employed, on a part-time basis only because of pressure of other work, on a block of some 1,300 acres of land in the Limbang area.

Valuation

The work of the Valuation Section has steadily increased since its formation in 1954, and it has continued to undertake valuations and assessments for the acquisition of land by the Crown for probate, stamp duty, Government mortgages, and for premia and rents on new alienation of land. The work of the section has been severely limited due to the fact that since its formation only one qualified valuer has been available for the greater part of the time to deal with work which covers all divisions. A second valuer arrived in October but Mr. J. R. Dickson will be returning to New Zealand on completion of his secondment from the New Zealand Valuation Department in March next. An officer of the Department is expected to obtain his full professional qualification during the latter part of 1961 and to assume duty before the end of the year.

The section has continued to make good progress on the work of revising land rents and notice was given during the year of revised rents on some 24,000 titles which will take effect from 1961. For the first time, rents on country land have been revised and from now onwards all such titles will be brought up for rent revision when they become due at the end of the twenty-year period. In spite of some criticism when the decision to revise land rents was made known, there has been negligible opposition and there were no formal appeals against the increases during the year. It is expected that the revenue

REFERENCE

Divisional Headquarters

Mixed Zone Land

Native Area Land

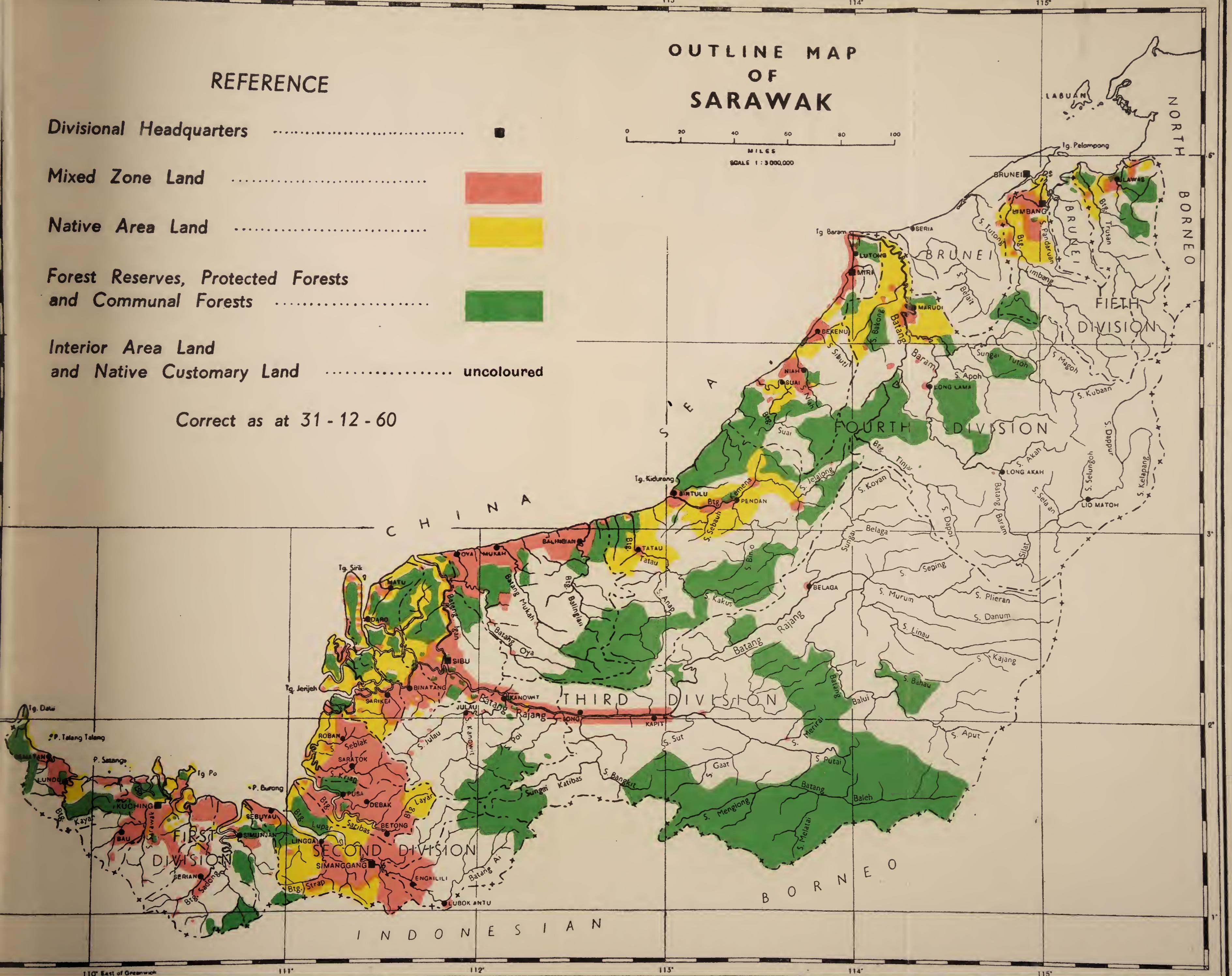
Forest Reserves, Protected Forests
and Communal Forests

Interior Area Land
and Native Customary Land

Correct as at 31-12-60

OUTLINE MAP
OF
SARAWAK

0 20 40 60 80 100
MILES
SCALE 1:300,000



from land rent in 1961 will exceed that of 1959 by about thirty-five per cent.

Steady progress continues to be made on the building up of records in all divisions for valuation purposes.

Values of both town and country land generally have remained steady but the value of the more desirable residential land in Kuching has continued to follow an upward trend.

Land Registry

The work of the land registries again shows a small but steady increase over previous years. 2,683 new titles were registered and the number of deeds of transfer and charge were 5,102 and 1,548 respectively.

Surveys

The Department of Lands and Surveys is responsible for both cadastral surveys on initial alienation and subsequent mutation of lots, and all topographical survey work. The cadastral surveys must remain the main survey task of the Department, but with the growing realisation of the necessity for topographical maps before planning of both town and rural development can be properly tackled, it is essential that a properly staffed and equipped topographical section be built up. The importance of good large scale topographical maps will increase as development proceeds and the topographical section of the Department will be of prime importance.

Cadastral Surveys

Cadastral surveys for title are carried out by theodolite where the land is valuable and by prismatic compass and chain in the rural areas. These latter surveys are controlled by standard and first and second class theodolite traverses which in turn are controlled by triangulation. The triangulation of the country is by no means complete and recalculation and re-adjustment of many of the control traverses will eventually be necessary. It is recognised that prismatic compass surveys for title are not satisfactory but for reasons of economy and until staff are fully trained prismatic compass surveys for country titles must be continued for several years to come.

The Department continues to use *belian* pegs as boundary marks (*belian* is an exceedingly hard and durable wood) but costs

continue to rise and with the increasing difficulties in obtaining supplies at a reasonable rate a change to concrete marks is possible within the foreseeable future.

In the First Division lot surveys have managed to keep pace with demands and in the Second Division, after re-organisation enabling better supervision to be undertaken, there has been a marked increase in the number of surveys completed. More surveys have also been completed in the Third Division than in 1959 but due to the increase in the demand in the Fourth and Fifth Divisions, many in isolated areas involving extensive travelling, it has not been possible to meet all requests there. In all divisions considerable work on the investigation and survey of customary rights has been undertaken. This is essential in many cases before survey for title can be put in hand.

Topographical Surveys

As far as topographical survey work is concerned one of the significant events of the year was the undertaking of traversing and fixing of control for both mapping and cadastral purposes using modern electronic measuring equipment, the tellurometer. Financial assistance for the work was provided under a Colonial Development and Welfare scheme and all equipment, together with the services of a qualified surveyor, was provided by the Directorate of Overseas Surveys.

The surveyor arrived in Sarawak in early January, 1960, but the tellurometer equipment did not arrive until early May, 1960. Until the arrival of the equipment the surveyor carried out extensive reconnaissance of the schemes on which it was proposed to use the equipment and after a brief period of familiarization and testing a party of twenty-two men has kept the equipment in full use. As a result over 300 miles of previously uncontrolled coastline has now been firmly tied in to the Primary Triangulation network. Secondary Triangulation has been strengthened, and points fixed to provide control for future development. A total of 440 miles of tellurometer traverse was completed, during which fifty-nine new control points were established.

A very small amount of tertiary triangulation by conventional methods was carried out resulting in the fixing of six new points.

The precise levelling from the Admiralty Tide Gauge at Pulau Lakei to Kuching for which the reconnaissance and construction of bench marks had been undertaken in 1958-59 was commenced in November. Good progress was made, even with the difficulties which were experienced when working in the mangrove and *nipah* swamp, and by the end of the year two-thirds of the work had been completed. Future precise levelling will be carried out following the Kuching-Simanggang road. Level surveys of four bazaars were also carried out to enable development planning to be undertaken.

Mapping

During the year a detachment of eighty-four Field Survey Squadron R.E. has been working in Sarawak and Brunei and are undertaking the supply of planimetric and height control for the mapping from air photographs of a large area covering Brunei, the whole of the Limbang basin, the Trusan and the Miri, Sibuti and Marudi areas. On completion of this field work twenty-four map sheets on a scale of 1/50,000 and fully contoured will be produced of these areas by the Directorate of Overseas Surveys in the United Kingdom.

The Survey Squadron also undertook the field checking of a map of Kuching to be produced on two sheets at the scale of 1/10,000. Two army personnel were stationed in Kuching for two and a half months for this purpose, and to date, printing of one sheet has been completed and the proof checking of the other has been completed. Printing of the second sheet is expected to be completed early in 1961.

The Directorate of Overseas Surveys has continued to undertake 1:50,000 mapping of Sarawak and a further nine sheets comprising the Lundu-Bau block have been completed during the year. Bulk supplies of printed sheets have not been received, but transparencies have been supplied from which the Department makes dyeline prints as required.

The Department undertook the slotted template assembly of the Engkilili-Katibas block of some 3,400 square miles. Compilation of six quarter degree sheets has been completed, compilation of the remainder is in hand and production will be on the scale of 1/50,000. Work has also continued on the

1:125,000 mapping series. Sheets 1, 2 and 3 covering Lundu, Kuching and Serian respectively, were fair drawn and forwarded to the Federal Survey Department, Malaya, for printing and are expected to be available early in 1961. Compilation material was also prepared and sent to Malaya for the making of blue pulls for Sheets Nos. 4, 5 and 7 covering Tanjong Sirik, Saratok and Sibu. Compilation material for the remaining areas covered by controlled 1/50,000 maps is being prepared and will be sent to Malaya for the preparation of blue pulls early in 1961.

A new map of Sarawak on the scale of 1:1,500,000 was produced, and appeared in the 1959 Annual Report, in many of the 1959 Departmental Reports and in the Hand-Book of Sarawak. This map has been revised and appears in this report in colour. A small map of Kuching Town Central on scale of 1:10,000 was also prepared for the Sarawak Hand-Book. The drawing of four chain sheets of Kuching was continued. Lack of staff and the overcrowded conditions very seriously hampered the efforts of the drawing staff, and the move to the new Headquarters building in 1961 will be very welcome.

HOUSING AND TOWN PLANNING

During 1960 the Department continued to assist landowners in the preparation of subdivision plans, and to prepare layouts for the subdivision of Crown land, as it has done for several years past. However, with the return, in October, of an officer qualified in Town and Country Planning steps were taken to set up the nucleus of a section of the Department to deal with planning matters. The training of staff has commenced, and work has begun on the preliminary surveys of Kuching Town. The section has also been concerned with interim development control in Kuching Town, pending the rewriting of the Town and Country Planning Ordinance, which is in hand, and the eventual preparation of a Development Plan.

The section has also been available to advise on problems outside the First Division; but in its present embryonic state its activities in this sphere have necessarily been very restricted. As the planned expansion of the section progresses, however, it is anticipated that an increasing degree of service will become available to local authorities, large and small, throughout the country.

Two projects of considerable importance to the development of Kuching have made good progress during the year; these are the construction of the new port facilities at Tanah Puteh, and the industrial estate at Padungan, Kuching. In connection with the former, early in the year the Governor in Council notified in the *Gazette* that about 195 acres of alienated land may be required for further development in the vicinity of the Kuching Port. A topographic survey of the alienated land, and also a very considerable amount of Crown land, is in progress prior to the preparation of a development plan for the area.

During the year the surveys and land acquisition for the reconstruction of the Pending Road, the main access to the port, were completed. It was also decided that an alternative access road from the Penrissen Road to the new port was necessary, and a road location survey has been made. It has been notified by the Governor in Council under section 47 of the Land Code that land in the vicinity of the trace may be required for the construction of a new road.

The industrial estate at Padungan made a good start during the year. An area of 6.8 acres of Crown land was subdivided into twenty-nine lots for industrial development assisted financially by the Borneo Development Corporation. Seven factories occupying eleven lots are being built, and other applications are now under consideration.

Interest in shophouse construction increased considerably in 1960 and while it is realised that many shophouses are used for storage, wholesale, industrial or even purely residential purposes, it would seem that the number of retail premises far exceeds the need. The Kuching Municipal Council has, therefore, decided that at present no more shophouses will be approved, and this decision, taken in conjunction with another to prevent industrial development in shophouses, has made it possible to persuade some developers to make other and more productive investments.

The demand for residential property is still great, and next year should see the two major private estates, Lintang Park and Iris Garden, complete. In addition to numerous small schemes, two larger layouts were approved during the year, one at Pending and the other in Padungan. Both include a

considerable proportion of terrace housing, the popularity of which in Kuching seems to be steadily increasing. In the *kampong* areas pressure continues to be great; during the year preliminary plans to extend Kampong Buntal and Kampong Siol Batu were made.

In the rural areas of the First Division the main interest centres on the area on both sides of the new road to Simanggang. The continued presence of the Public Works Department road construction camp delayed any definite action on the bazaar at Balai Ringin but preliminary topographic surveys have been completed, and funds have been included in the Development Plan under Bazaar Development.

In the Second Division progress has been rapid in Simanggang throughout 1960. Work on the Serian-Simanggang road continued throughout the year. A preliminary route for the Simanggang-Engkilili road was selected, and engineering surveys were commenced by the Public Works Department. With the imminent prospect of road connection to Kuching and the construction of an important feeder road it seems likely that this rapid progress will continue. During the year a piped and treated water supply became available and the projects presently under construction include a new Government Secondary School, a new commercial wharf, and an extension to the Power Station Offices for the Sarawak Electricity Supply Company Limited.

In view of this a plan for the expansion of the central area, to include provision for a new Post Office and telephone exchange, a new office for the Batang Lutar District Council, and a Bus Station was submitted to the Governor in Council towards the end of the year.

In the rural areas the most important project is undoubtedly the Sarikei-Saratok road, a preliminary route for which was selected during 1960. It is anticipated that this road connection will bring greater prosperity to Saratok, and permit the long envisaged scheme to move the bazaar to a new site to be carried out. To this end detail surveys of Saratok are in hand, and it is anticipated that planning will be able to commence early in the new year.

At Pusa heavy erosion of the site of the Government Station has meant that the selection of a new site has become a matter

of some urgency. Two possible sites have been chosen for investigation which is to take place early in 1961.

In Sibu in the Third Division the pace of the development reflects the fact that this is the town with the greatest rate of growth in Sarawak. There is no doubt that the preparation of a plan for Sibu is a matter of some considerable urgency, which must be given attention as soon as adequate staff are trained. In the meantime the Superintendent of Lands and Surveys, Third Division, is advising on the more important aspects of interim development control, based on preliminary zoning, and in an interim roading scheme.

Undoubtedly the project of greatest immediate importance is the future of the port area in Sibu. The needs and requirements of the port were under active investigation during the closing months of 1960, and the form which any projected expansion is to take will obviously affect very greatly the development of the central area in Sibu. Also of importance to this development is the necessity for enlarging the power station. The relative merits of enlarging the existing site or removing the whole station to a new site at Sungai Merah were under consideration at the end of the year. A site for a new telephone exchange has already been selected at Sungai Merah.

With the growth of Sibu it is pleasing to note that the "barrack type" dwellings on the fringe of the commercial zone, which caused so much concern until recently are now being gradually replaced by new brick and concrete terrace housing of a high standard. Control of density is exercised by the Sibu Urban District Council which has resisted continual pressure to relax its standards.

Of the smaller towns in the Third Division, Sarikei is rapidly establishing its position as the centre for a considerable area. The road from Sarikei to Binatang is nearing completion, engineering surveys for roads from Sarikei to Saratok and Sarikei to Pakan have commenced. With the additional possibility of port development there the future of Sarikei seems assured.

During the year Government completed the new Sarikei Hospital, and constructed a pepper godown. Plans for a new automatic telephone exchange are also being prepared. The

Sarikei District Council constructed a new block which includes the Town Hall, Fire Station and a Clinic under one roof, and is now showing active interest in the provision of a sports centre and swimming pool for Sarikei Town.

The last five years has seen a remarkable change in Julau bazaar, and with the new roads which are planned it seems likely that development will continue in the future. Some pressure for new shoplots has been exerted by the local tenants association, which would seem to result from a desire of tenants in the two old blocks to occupy modern premises such as those completed in 1959, which are now attracting the bulk of the trade.

In the Fourth Division the position of Miri is complicated by the presence of the Miri Oilfield, for much of the land surrounding or within the town area is subject to the rights of the Sarawak Shell Oilfields Limited under the terms of their oil mining lease. Nevertheless the Oil Company is always extremely co-operative, and make every effort to release land quickly when it is no longer required for their operations. This year Government took over the Hospital and all ancillary buildings on the peninsula at Miri, formerly owned by the Sarawak Shell Oilfields Limited, and purchased some thirty-two semi-detached houses in Merbau and St. Johns Wood, Miri. Sarawak Shell Oilfields Limited also undertook to lay out a sports field and running track adjoining the Pujut Road, Miri, to mark the completion of fifty years' oil production in the Miri field. During the year the Public Works Department started work on Stage 1 of the roading plan for Krokop, which was surrendered by the Oil Company in 1959, and the Sarawak Electricity Supply Company commenced the laying of underground cables in the area.

The slum clearance scheme, which has been in progress for nearly seven years, is now nearing completion. At the end of

Log raft in the Rejang near Sibu. (*Soon Lee Guan*)

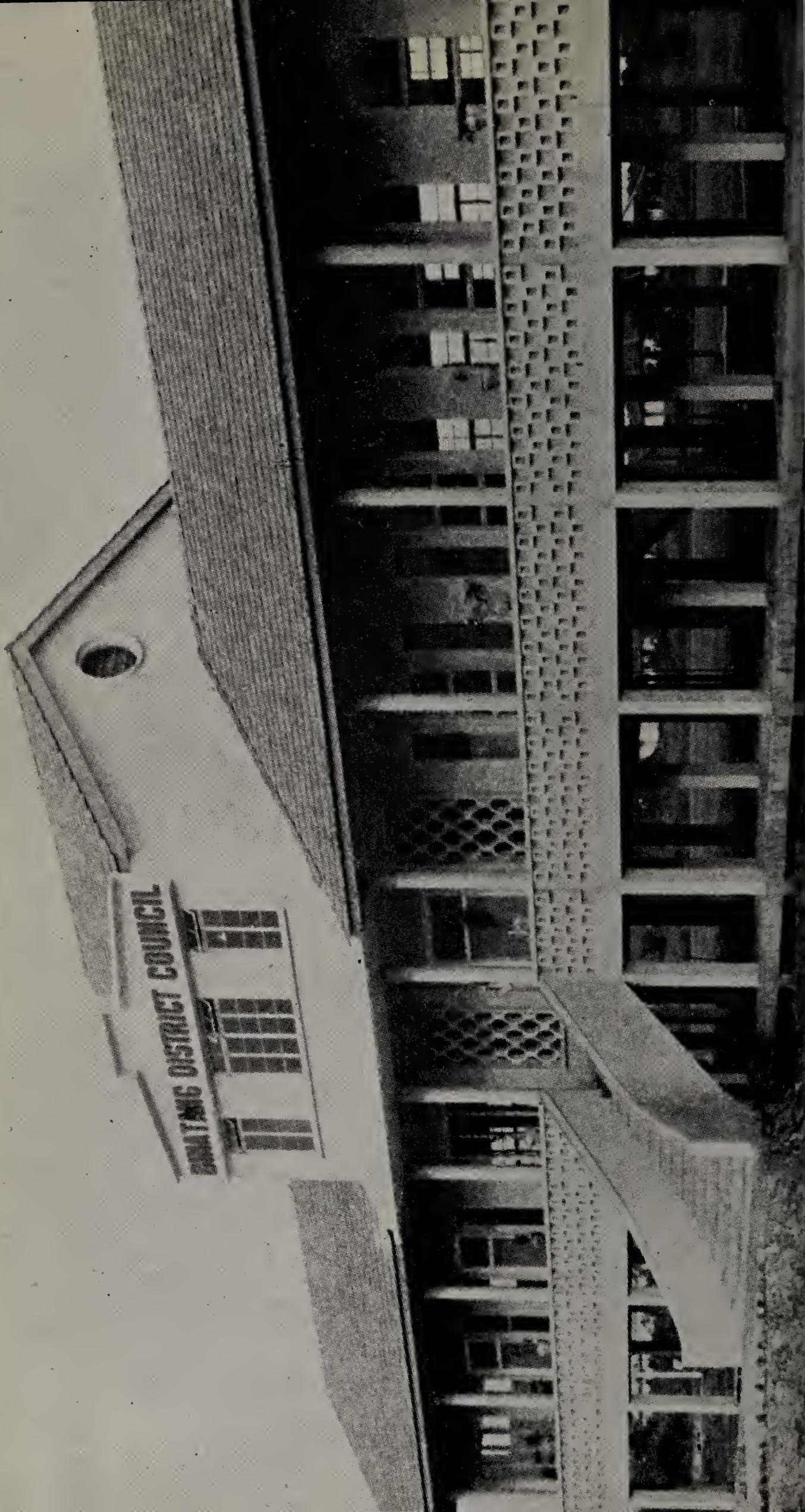
Overleaf:

The new office of the Binatang District Council. (*Chong Chung Sing*)

View over Betong station in the Second Division. (*Meadow Studio*)



DRIVING DISTANCE COUNCIL







1960 only two of the original slum properties were left standing and these will shortly be removed. This is an excellent example of a scheme planned to be brought to fruition gradually; the result has been that it has cost considerably less to Government than originally planned, and it has been possible to direct savings from the scheme to other bazaar improvements not originally included.

Development in Bintulu continued to be steady, due largely to the stimulus of the successful Sibiew Rubber Planting Scheme. During the year a block of shophouses, a cinema and a restaurant were constructed; a V.H.F. beacon was erected and an extension of the electricity supply to the left bank of the Bintulu River was planned by the Sarawak Electricity Supply Company Limited.

In Marudi the planned development of the town continued steadily. Further building has taken place in the residential area and in the industrial area; and the completion of Marudi Pumping Station and High Level Tank has brought the day when piped water will be available nearer. With the work on the Pujut Road continuing, a road which will open up the hinterland of Marudi, the future of this town would seem to be bright.

In the Fifth Division, the construction of shophouses in the new bazaar at Lawas continued at a slow but steady rate. Earthworks on the Lawas-Trusan road were completed during the year and surfacing is in progress. However, there is little sign as yet of the vigorous growth that the opening up of the hinterland of Lawas is expected to induce.

In Limbang progress is also steady; in 1960 a cinema and three shops were completed, and a large residential area planned. To cope with the expansion the Sarawak Electricity Supply Company Limited have laid new underground cables, and are contemplating enlarging the power station. However, once again it must be emphasised that the future of the town is inexorably linked with the improvement of communications and development of the surrounding agricultural area.

Aerial view of Nanga Pakan Bazaar on the Julau. A road will be built to link this bazaar with the Sarikei-Binatang Road.
(K. E. H. Kay)

VII

PRODUCTION

AGRICULTURE

AGRICULTURE is the principal occupation of more than two-thirds of the population and accounts for over half of the national income. Out of a total estimated at 48,250 square miles, approximately 2,700 square miles (six per cent) is under settled cultivation, 8,700 (eighteen per cent) under shifting cultivation and the remainder is forest of various types, much of it inaccessible. The agricultural economy shows little diversification and in the more remote areas the principal activity is the cultivation of dry padi on a system of bush fallowing, usually termed shifting cultivation. Rubber is the main cash crop and the industry is almost entirely of a smallholding character, there being only five large estates in the whole territory. Other export crops in order of importance are pepper, sago and coconuts. Rice is the staple foodstuff but the total production of both wet and dry types is still insufficient for the needs of the population and approximately half of the country's requirements are imported. Other food crops such as tapioca, sweet potatoes, maize and coco yams are grown to supplement rice. The use of imported wheat flour is common.

The Department of Agriculture is charged with triple responsibilities for agriculture, veterinary and freshwater fisheries services and the policy of the Department, which remains unchanged, seeks—

- (a) while maintaining fertility, to develop, intensify and diversify agriculture, paying particular regard to food supplies, especially rice and all forms of animal protein;
- (b) to increase exports of cash crops, particularly pepper, rubber, coconut and sago;
- (c) to introduce and develop new crops shown by experimentation to be of economic significance, and
- (d) to promote and assist in the sound agricultural development of new lands.

The 1959-1963 Development Plan was revised by Council Negri in August and a further \$5,471,740 was added to the provision for agriculture which now totals \$36,324,884 or 23.6 per cent of the estimated cost of the plan. Indirectly through the provision of better communications, which also figure largely in the plan, and directly through expanded programmes of research on soils, pepper and rice and by way of major economic schemes for improvement of rubber, coconuts and rice, the Development Plan now makes possible the achievement of very considerable progress in the field of agriculture. The new funds provided also permit more rapid expansion in production of fruit trees and breeding pigs, trials with oil palms (in preparation for future large-scale development of this crop) and extension of the use of buffaloes for cultivation and draught purposes.

In general, 1960 proved to be an even more satisfactory year for farmers than 1959. Prices of the main export crops, rubber and pepper, were well above the levels of recent years and rubber prices, in particular, were high and steady, resulting in an increased production of over 15 per cent compared with 1959. Despite the higher prices paid, pepper exports were lower than for many years past and, while this may be due in part to retention of the crops by farmers in anticipation of higher prices later in the year, there is no doubt that the 1960 crop was substantially smaller. Sago prices remained constant but exports at 19,966 tons showed an increase of nearly 2,200 tons as compared with 1959.

The harvest of both hill padi and wet padi taken in 1960 was reported to be satisfactory in most areas and a number of districts reported an improvement over the previous season. Pest damage continues to cause losses but the Department's free Pest Control Service has continued to expand and ever increasing numbers of farmers appreciate its value. The success of hill padi farming depends very considerably upon the effectiveness of the preceding burn and it is unfortunate that certain areas have had poor burns in the current 1960/1961 season due to excessive wet weather. This has also held up the cultivation of wet padi to a marked extent.

The Sarawak Development Finance Corporation continued to provide financial credit for agricultural undertakings. During 1960 loans amounting to \$6,045 were arranged for farmers and

fishermen and at the end of the year \$1,281,496 had been lent in the form of advances to pepper exporters in connection with the bulk storage of pepper prior to export. This latter facility proved very popular in Sarikei and the 373 tons of pepper held in store under this scheme contributed to some extent to the lower export figures for this crop.

Agricultural Census

To secure reliable and comprehensive information regarding agricultural practices in Sarawak in order to assist with sound planning of future economic development, an agricultural census was undertaken during the months of June, July, August and part of September. It was the first of its kind ever tackled in this territory and was held in conjunction with the Food and Agricultural Organisation (FAO) World Census programme, 1960. For a number of reasons a complete census was out of the question and the technique followed was that of a sample census. Data are now being collated and it is hoped that the report will be ready in a few months' time.

Rubber

Rubber started on a bright note and prices were high for the first six months, rising to \$153 per pikul in early June. In the second half of the year, the prices showed a decline although still remaining very satisfactory and stood at approximately \$100 per pikul at the end of December. Roughly 80 per cent of the estimated planted acreage (300,000 acres) consists of old unselected seedling trees rapidly nearing the end of their economic life and the five estates of over 1,000 acres account for only 13,285 acres of the total under this crop. Exports amounted to 49,961 tons of rubber valued at \$122,440,482, being roughly 6,000 tons greater than in 1959 and the second highest total since the war. The rubber produced is marketed as sheet and blanket crepe through merchants operating as licensed rubber dealers of whom there were 2,835 in addition to 109 registered exporters and owner-exporters.

The Rubber Planting Scheme which was introduced in 1956 to encourage new planting and the replacement of old uneconomic rubber with selected high-yielding trees, was fully described in the 1956 Annual Report and enlarged upon in subsequent reports.

Interest by all races in this scheme continued unabated. During 1960, approval was given to smallholders to plant 21,664.75 acres and replant 552 acres, while estates received approval to replant 160 acres. Cancellations for the year totalled 10,718 acres, for various reasons such as reduction of acreage after survey, unsatisfactory maintenance, no work done and voluntary withdrawals. The total approved commitments of the scheme at the end of the year, in respect of smallholders and estates, for new planting and replanting amounted to 64,338 acres. Of this, a total area of 43,550 acres has been successfully planted with high-yielding materials of which the estate total is 974 acres. Cash subsidy payments for new planting and replanting amounted to \$194,976.82 and \$109,683.68 respectively. The distribution of fertilisers on a tender system continued to operate extremely well and acknowledgement is made of the valuable assistance rendered by the firms concerned. The total number of distributors in the field is 43. Approved applicants received during 1960 a total of 2,088 tons of fertilisers, 5,333.5 pounds of Dowpon (lallang weedicide), 86.75 gallons of 2.4.5T (tree killer), 658 rolls of barbed wire, 14,568 gallons of Shell lallang oil, 120.5 pounds of Fylomac "90" (disease treatment), and 940 pints of Dieldrex (white ant killer).

As recorded above, nearly 22,000 acres were approved this year, but it was realised that the lack of staff would make it extremely difficult to supervise the planting and financial work connected with this large acreage in one year. It was therefore decided by the Board of Administrators at the 11th Meeting held on the 11th April, 1960, to declare a moratorium on applications for one year. The effect of this is that no applications will be approved during 1961. This moratorium will give breathing space to the heavily taxed staff and enable them to improve maintenance standards in the areas already planted, and to clear up the backlog of unplanted acreages.

Since its inception the scheme has been largely confined to the more accessible areas, but it was clear that something also had to be done for farmers in the more distant parts of the country. However it was evident that the present staff and existing organisation of the Rubber Planting Scheme could not possibly give the necessary supervision and undertake the detailed

records which are essential for the proper running of the scheme. It was therefore decided by the Board of Administrators at the 12th Meeting, held on the 26th September, 1960, to introduce a Supplementary Assisted Rubber Planting Scheme. Under this scheme, planters from areas not now covered by the Rubber Planting Scheme will be invited to come to selected centres where they will be taught the rudiments of land selection, preparation of land, planting and maintenance. They will then return to their longhouses to prepare their land, after which they will collect clonal stumps for planting one acre of rubber from special strategically situated nurseries together with small quantities of fertiliser, both of which will be issued free of charge. The planting and maintenance of gardens will be the responsibility of the planters themselves, but every effort will be made by Rubber Planting Scheme staff to visit these plantings within twelve months. Planters who have done well will then be allowed materials sufficient for a further two acres should they desire it.

A determined effort is being made to teach farmers how to improve the quality of their sheet rubber so that it will attract a higher price. As an example to farmers in particular areas of what can be done to produce good quality sheet, fourteen processing centres have been set up at strategic points and more are projected.

2,044,191 clonal seedling stumps were distributed, many having to travel up to ten days before being planted in the field. In addition 104,613 clonal stumps, sufficient to plant 523 acres, were sold to private planters, indicating that many more people in Sarawak are realising the true worth of this type of planting material. Budding operations absorbed 19,687 yards of approved budwood of various clones from departmental nurseries.

In anticipation of 1961 planting requirements, a total of 6,000,000 Tjir 1 clonal seeds were imported for nurserying. Of these 4,357,030 germinated and were later planted out in field nurseries. As Sarawak has been dependent to date upon Malaya for its supply of clonal seeds it is pleasing to report that an area of approximately 100 acres on Sungai Moyan Estate has been certified by the Rubber Research Institute of Malaya as suitable for the collection of Tjir 1 clonal seeds and action is in hand to exploit this area as soon as circumstances permit.

Samarahan Estate

A start was made with the experimental Land Settlement Scheme but very few applications were received from prospective settlers and the terms of settlement were under review at the close of the year.

Rice

Rice is the staple food of most of the indigenous races of Sarawak and its export either as rice or padi (unhulled rice) is prohibited. Though padi is not in general a cash crop, farmers in certain more favourable areas do derive a quite appreciable income from the sale of surplus production and Government continued during the year to pay a guaranteed support price for padi, namely \$13.50 per pikul. A total of 2,373 tons was purchased in this way. During 1960, 45,709.76 metric tons of rice were imported into Sarawak compared with 50,484 tons in 1959. The acreage of wet and dry padi harvested during the 1959/60 season was estimated at 268,000 acres (82,650 and 185,350 respectively) with yields of 232 *gantangs* and 118 *gantangs* per acre for wet and dry padi which approximate to the general average for Sarawak. Because of bad weather the acreage planted in the 1960/61 season is likely to show a decrease.

The Assistance to Padi Planters Scheme, which was started in 1959 to give technical and indirect assistance to small groups of wet padi farmers who would co-operate in their effort to improve their *sawahs*, has progressed slowly. In many parts of Sarawak there is no tradition of annual wet padi cultivation of the same area nor is it easy in many areas to get unanimous support for a scheme from all the participants. A further difficulty is the shortage of staff trained in survey work but there is no doubt that the scheme is potentially a most useful one. The number of areas assisted in 1960 was nineteen with a total area of 1,185 acres.

Pepper

Pepper is still the second most important cash crop in Sarawak although exports of both black and white pepper dropped very considerably. While this reduction can be mainly ascribed to decreased planting during the period 1954-1957, the full impact of which is only now being felt, nevertheless the retention of

stocks by producers/dealers was also a contributory factor which cannot be ignored. No accurate estimate has been made of such stocks and it is quite possible that they may not be as large as is thought. Replanting on exhausted soils, inadequate manuring and widespread occurrence of the newly discovered physiological disorder caused by acid soil conditions, all resulted in reduced yields per acre and of course in total production. On the other hand, extensive new planting has been in progress since the end of 1959, and particularly during the first four months of 1960, stimulated by recent more favourable prices. These newly planted areas are estimated at roughly 1,000 acres, making the total acreage under pepper approximately 7,000 to 8,000 acres. The sub-standard condition of many of the mature and immature vines is giving rise to concern in some parts of the territory due to the acid soil disorder mentioned above. (See *Research and Extension* below).

Pepper prices rose sharply early in the year to levels which have not been recorded since 1952, white pepper reaching \$412 per pikul and black pepper \$280 per pikul in February. A slow, irregular but steady decline in price then followed and at the end of the year, prices per pikul stood at \$202 for white and \$132 for black. A further drop in pepper exports from Sarawak will be noted in the following figures* which refer to black and white pepper combined:—

WORLD EXPORTS OF PEPPER IN TONS
(to the nearest 50 tons)

	Sarawak	India	Indonesia	Rest	Total
1937 to 1939 (mean)	2,700	1,150	50,900	4,850	59,600
1952	4,000	13,200	6,800	1,300	25,300
1953	9,000	11,600	7,500	1,000	29,100
1954	15,550	15,400	12,450	800	44,200
1955	16,300	12,350	13,250	1,500	43,400
1956	19,800	12,200	18,600	1,300	51,900
1957	13,750	15,400	20,550	2,300	52,000
1958	9,700	14,100	20,800	2,450†	47,050
1959	8,450	15,200†	40,350†	4,750†	68,750†
1960	4,100†	27,700†	34,400†	13,950†	80,150†

*Compiled from "Foreign Agriculture Circular 1960", U.S. Dept. of Agriculture, Washington D.C.

†Provisional figures.

Apart from last pickings which are normally made into black pepper, growers tend to change the type of pepper produced according to the price differential between the two types, provided there are adequate supplies of clean water for white pepper processing. The variation in export of the different types produced over recent years is as follows (figures to the nearest ton):—

Type	1952	1953	1954	1955	1956	1957	1958	1959	1960
White	1,997	1,391	2,715	2,334	2,760	2,298	5,137	6,562	3,394
Black	2,016	7,606	12,750	13,963	17,058	11,442	4,589	1,887	706
Total	4,013	8,996	15,465	16,297	19,818	13,740	9,726	8,449	4,100

The drying, cleaning and grading plant installed at Sarikei in 1959 has not yet been used commercially. Full advantage has, however, been taken of the storage facilities at Sarikei provided by the Sarawak Development Finance Corporation.

In November the rate of export duty on pepper was revised with the object of helping growers when prices are low and discouraging excessive speculative planting when prices are high.

Foot-rot disease remained in a quiescent state and research into the various aspects of this disease continued. Pepper agronomy investigations were further expanded by laying down fertiliser experiments in a number of commercial gardens and small scale observations on black pepper processing methods were carried out.

Sago

The area under sago is estimated at 150,000 acres and occurs mainly in the Mukah, Oya and Dalat Districts of the Third Division and the Beladin, Saratok and Pusa Districts of the Second Division. Although in recent years the extraction of crude sago has been mechanised to a considerable extent, the machinery used is locally made and primitive. The refining process consists of a single washing and settling, followed by sun drying and hand sieving and the resulting product is of comparatively low quality. Prices throughout the year remained low and the industry depressed, but despite this, the tonnage of sago flour exported again showed a rise—19,966 tons compared with 17,779 tons in 1959—which illustrates the lack of

other economic activities open to the communities concerned. A soil survey of the sago areas in the Third Division was carried out during the year to assess the possibility of introducing more diversified systems of agriculture there.

Coconut

The total acreage of coconuts is not accurately known but is estimated to be between 25,000 to 50,000 acres. It is entirely a smallholder's crop comprising either scattered palms in the vicinity of houses, or groups of smallholdings usually averaging five to ten acres in area but on occasion extending to as much as 100 acres. Although details are lacking, many palms are known to be old and yields correspondingly low. Nuts are either sold fresh in local bazaars where, in many parts of the country, prices are highly inflated, or treated in crude kilns for the production of poor quality copra almost all of which is absorbed by the local coconut oil industry.

The Coconut Planting Scheme, designed to plant up a total of 10,000 acres of coconuts during the period 1959/63, was described in the 1959 Annual Report. Since the inception of the scheme on 1st January, 1959, a total of 660,000 seed coconuts has been purchased, almost exclusively in the First Division, and transported to nursery sites in all divisions. Within nurseries a rigorous system of selection has been practised and to date a total of 162,955 seedlings, sufficient to plant 3,258 acres, has been planted in smallholdings and 80,473 (equivalent to 1,611 acres) in the vicinity of village houses. The distribution of seedlings from these nurseries continues. The response to the scheme has been growing steadily and during the year the target acreage was increased to 20,000 acres and the scheme value from \$1,200,000 to \$2,004,000. The action by Government in December to waive the export duty on coconut oil should stimulate further interest in the scheme.

Minor Crops

Maize, sweet potatoes, yams and tapioca are grown widely, particularly in association with shifting cultivation, where they serve as a useful supplement to an uncertain padi crop. Maize is grown to a limited extent for sale in the First, Second and Fifth Divisions. Vegetable growing remains almost exclusively in the hands of Chinese market gardeners in the vicinity of the

larger towns, and in Miri an export trade in fresh vegetables to Brunei continues to flourish. Elsewhere vegetable growing enjoys little popularity. Gourds and pulses are interplanted through dry padi but the absence of thorough cultivation and the general uncertainty of the shifting cultivation system makes for low yields. Bananas and pineapples are usually plentiful and the production of these together with derris, ginger, turmeric and chilli has received a considerable boost from catch cropping on land newly cleared for planting under the Rubber and Coconut Planting Schemes. Ginger, chilli and coco yams are also commonly interplanted through newly established pepper.

A wide variety of tropical fruits is grown in all divisions but in general these are planted in mixed stands in the vicinity of houses and villages and their quality leaves much to be desired. Of the economic fruits, citrus alone is planted as a pure stand and orchards in the Binatang District of the Third Division export quantities of oranges to other parts of the territory. Interest in the orchard planting of citrus is increasing in the First Division. The demand for planting material of *rambutan* and *durian* remains high and increased production on Agricultural Stations allowed 8,206 plants to be sold to the public (8,043 budded *rambutans* and 163 budded *durians*).

Interest in coffee planting, particularly amongst Land Dayaks of the First and Ibans of the Second Division, continues and seedling issues totalled 36,170. Low quality tobacco is grown in the First, Third and Fourth Divisions for sale in local bazaars. In the Third Division the establishment of a cigarette factory at Sibu has stimulated interest in the crop, both in terms of the acreage grown and the quality of the leaf produced, by offering high prices for better quality leaf. In this connection the variety Virginia Gold introduced from the Department of Agriculture, Australia, is proving popular. Tobacco production at Niah in the Fourth Division suffered a setback when the small factory there was burned down in the early part of the year and production has not yet recommenced.

Research and Extension

Further progress was made in the organisation of Agricultural Research and, with the arrival early in the year of three Soils Surveyors and towards the end of the year of a Pathologist

and Entomologist, the Research Branch was nearly fully manned as regards senior staff. An entomology and agronomy wing was added to the pathology laboratory, most of the funds required being provided by a generous Colonial Development and Welfare Fund grant. The programme of investigations on various crops is progressing well.

The Plant Pathologist, who was seconded to Sarawak from the Commonwealth Pool, concluded his work on foot-rot disease of pepper in November and submitted a final report. The assistance received from the Pool and the Pool Plant Pathologist in this thorough and painstaking investigation which resulted in the isolation of the causal organism and the drawing up of recommendations for the control of the disease, is gratefully acknowledged.

The physiological disorder known as "Acid Soil Disease" was first noted towards the end of 1959 in an experiment on the Tarat Agricultural Station. Early in 1960 the Pepper Agronomy and Soils Divisions of the Department discovered that this condition was caused by a combination of soil acidity, magnesium deficiency and aluminium toxicity, resulting in die-back of the feeding roots. Subsequently, the leaves of affected vines become yellowish, brownish spots appear and there is a marked wilting of the whole vine. It was found possible to cure this disorder, provided it had not become too serious, by application of magnesium limestone (dolomite) to correct the acidity and magnesium deficiency of the soil. A leaflet, incorporating coloured illustrations and giving details of the treatment advised for prevention and cure of this condition, was issued throughout the pepper-growing areas.

Since the three Soils Surveyors arrived, a considerable amount of work has been accomplished in surveying areas connected with drainage and irrigation schemes, feeder roads and land development projects. It has also been possible to make a start on a reconnaissance soil survey of the whole country and, including this less detailed work, approximately 2,000 square miles of country were covered by the three teams. No apology is made for stating once again that the fundamental importance of soil surveys in all forms of rural development cannot be over emphasised.

The results of the first experiments in the Rice Research programme were obtained in the harvest of 1960 and, while the experiments must be repeated to ensure that the results can be relied upon, the excellent response to an inexpensive seed dressing of fertilisers in hill padi is most encouraging. With wet padi on the other hand it seems probable from results to date that little benefit will accrue from the use of fertilisers and improved varieties until the general standard of cultivation is greatly improved.

The Extension Branch is responsible for bringing the results of research to the farmer in an easily assimilable form and ensuring their adoption in current agricultural practice and conversely for transmitting the farmers' problems back to the research worker. In so doing the modern concept of directing extension work at the farm family as a unit is now being followed.

Included in these activities are such important services as staff training; training courses for farmers; the organisation of demonstrations on Agricultural Stations; the multiplication and issue of a wide range of planting materials; improved livestock; freshwater fish fry; free pesticides; agricultural literature; and propaganda in the form of radio talks and press releases.

This year as a result of a co-educational training course initiated in November, 1957, the first fully-trained extension personnel were posted for field duty as teams, comprising one man and one woman, in strictly localized areas. These teams live with the people with whom they are to work and their first task is to acquire an intimate knowledge of the people, their problems and their wants, and subsequently to formulate and carry out programmes of work designed to meet the community needs. Progress along these lines must of necessity be slow but initial results are most encouraging and give, in particular, further indication of the tremendous potential for rural development which lies in the women of Sarawak.

The training of further extension personnel was greatly facilitated by the completion of an Extension Training Centre at Tarat, thirty-four miles from Kuching, which was formally opened by His Excellency the Governor on 21st July.

Staff Training

In furtherance of a policy designed to ensure a well-trained and efficient staff, the staff training programme was intensified by every possible means both within Sarawak and abroad.

Five overseas scholarships were awarded for diploma courses in Agriculture and one Home Economics Diploma Scholarship holder received an additional award from the Philippines Government for a degree course. Two officers returned to the Department having successfully completed diploma courses at the College of Agriculture, Serdang, Malaya, and one woman officer completed a course of training in home economics arranged by the Government of New Zealand under the Colombo Plan.

In the realm of in-service training, and also under the Colombo Plan, two junior officers proceeded to India to take a two-year course in Veterinary Science and two more went to Malaya for a one-year course in Rice Agronomy. One Home Demonstrator attended a course of training lasting three months at the R.I.D.A. Women's Training Centre, Kuala Lumpur, at the invitation of the Malayan Government.

Sixty-five new recruits were given induction courses lasting one month and thirty-eight junior Agricultural Assistants and Women Home Demonstrators were attending the Department's fifteen-month course in general agriculture and extension methods. Twenty junior officers attended one-month courses on freshwater fish culture.

Through the courtesy of the Rubber Research Institute, Malaya, eighteen officers attended a series of one-month courses on rubber processing and planting techniques at the Institute's training centres. In addition, a further fifty junior officers attended a series of two-week courses in all aspects of rubber cultivation and production at the Department's training school at Samarahan Rubber Estate.

Rural Agricultural Education

Although a further five Sarawak Government Scholarships in Agriculture tenable at the School of Agriculture were offered for farmers' sons, only four candidates with the requisite qualifications were secured.

Courses in general agriculture, varying from one to two weeks in duration, were held at Agricultural Stations in the First, Third and Fifth Divisions, and were attended by 107 farmers some of whom were accompanied by their wives. In addition, every opportunity was taken to demonstrate to rubber planters the latest techniques in planting and processing and eighteen two-week courses held at the Department's training school at Samarahan Estate were attended by 306 farmers and their wives. One special course on rubber planting and processing was held for school boys.

Propaganda

With the help of Radio Sarawak the Department continued to maintain and strengthen the link between itself and farmers by means of regular weekly broadcast programmes in the vernacular and by the introduction of a new vernacular programme directed specifically towards the women of the country. The production and distribution of technical literature both in English and the vernacular continued and the establishment of a Publicity Section in the Department towards the end of the year should give considerable impetus to this work in the future. Exhibitions depicting the work of the Department were presented at the trade fairs at Kuching and Sibu and at the annual regatta at Serian. These attracted great interest.

ANIMAL HUSBANDRY

Animal husbandry still plays little part in rural economy and mixed farming with livestock playing any major role is almost unknown. The only exception to this is the widespread keeping of pigs by Chinese and other non-Muslim Native communities. There has been a noticeable improvement in pig husbandry in urban areas but in rural areas the main obstacles against progress are the lack of cheap protein for stock feeding and the inability to control disease in unpenned pigs.

The latest livestock census figures (taken at the end of 1960) were :—

Division	Buffaloes	Cattle	Pigs	Goats
First	52	713	36,000	3,469
Second	90	7,144	47,553	1,124

Division	Buffaloes	Cattle	Pigs	Goats
Third	292	2,265	66,211	3,000
Fourth	463	831	15,135	939
Fifth	8,467	163	12,687	489
Total	9,364	11,116	177,586	9,021
1959 estimate	8,735	5,751	138,158	7,788

The control of the export of buffaloes, cattle, pigs and goats and of the slaughter of buffaloes and cattle, is vested in the Department of Agriculture under the Miscellaneous Licences (Slaughter and Export of Cattle) Regulations, 1957. This ensures to some extent that there will be no undue decrease in the numbers of future breeding stock.

A number of small herds of dairy cattle are kept in Kuching (six) and in Miri (three) but milk production is not high and conditions of housing are generally unsatisfactory and unhygienic. Buffaloes are kept mainly for meat production although in the Fifth Division they are used to a limited extent for draught purposes and also for wet padi land cultivation. Seventeen trained buffaloes were imported from North Borneo during the year as part of the campaign to stimulate interest in working buffaloes. They were accompanied by handlers who trained farmers and departmental staff in this method of cultivation in addition to breaking a number of locally-bred animals to the plough.

The small quantity of beef and mutton that is consumed in Sarawak is mainly imported on the hoof from Singapore and, to a lesser extent, from North Borneo and Brunei. Cattle breeding is essentially a long-term process and this, coupled with the fairly high capital outlay necessary, mainly accounts for the lack of progress in establishing a cattle industry.

The number of local pigs increased during 1960 but so also did the demand for pork due to the comparatively high level of prices of rubber and pepper. As a result, during the first half of the year, imports of pigs also increased until local production was able to cope with demand, after which imports declined once again.

Poultry keeping is also gaining in popularity and there are now a number of flocks of between 1,000 and 5,000 birds chiefly in Kuching, Sibu and Miri where this form of livestock husbandry has developed markedly in recent years. There are five such flocks in the First Division, sixteen in the Third Division and eight in the Fourth Division and there are many other units of between 100 and 1,000 birds.

The number of livestock imported during 1960 compared with previous years was:—

Class of Stock	1957	1958	1959	1960
Cattle and Buffaloes	998	705	881	1,253
Pigs	13,679	7,437	9,081	13,263
Poultry	34,592	36,260	61,798	57,136

Because of the low local demand for beef and mutton, the number of cattle and buffaloes imported remains at a fairly constant level. Imports of pigs fluctuate and while there was an increased demand in 1960 this was offset to some extent by the increased survival rate amongst local pigs due to improved veterinary services. The work of the Veterinary Branch has greatly expanded and, of equal importance, more stock farmers are showing themselves aware of its activities and exhibiting increasing confidence in the services offered.

Goats are not numerous and are found mainly in Malay and Dayak communities. The standard of husbandry is low; they provide a useful source of meat on special occasions but do not form an integral part of the diet.

No cases of rabies, rinderpest, foot and mouth disease, swine fever or other major epizootics occurred and Government policy continued to be strict control or prohibition of imports of livestock from territories where such diseases are known or likely to exist. A new Veterinary Clinic was opened at Miri which should enable a more comprehensive service to be given in the Fourth and Fifth Divisions.

Free prophylactic treatment continues to be given against Haemorrhagic Septicaemia in cattle and buffaloes, Pasteurellosis in pigs and Ranikhet (Newcastle) disease and fowl pox in poultry.

The figures for such treatment show a steady rise over the past four years and are as follows:—

	1957	1958	1959	1960
Haemorrhagic Septicaemia				
—cattle	209	65	96	117
Pasteurellosis—Pigs	365	1,379	3,247	8,269
Ranikhet D.—Poultry	189,552	227,792	303,144	347,375
Fowl Pox	4,791	22,987	34,288	34,910

The Veterinary Clinic and Laboratory in Kuching and the smaller unit in Miri have continued to provide facilities for the diagnosis and treatment of disease and are the centres from which the veterinary extension services are planned and controlled. Pigs continued to be the main class of stock to receive veterinary attention and some 17,799 were treated during the year. The Veterinary Branch co-operates with the municipal authorities which are responsible for meat inspection and assists whenever required. Slaughterhouse returns for municipal areas were:—

Cattle	762	Goats	651
Buffaloes	924	Pigs	45,615
Sheep	180		

FRESHWATER FISHERIES

Activities continued to develop and an increasing number of farmers are taking up freshwater fish culture. Appreciable areas of low-lying land in both urban and rural districts unsuited to productive agriculture have been utilised for the construction of fish-ponds and, compared with 283 ponds and 829 ponds in 1958 and 1959 respectively, 832 much larger ponds were constructed and stocked during 1960. The Land Dayak community still showed the greatest interest in this work and completed 483 ponds in 108 villages compared with 293 constructed in 1959. In the interior areas of the Second Division, Sea Dayaks have completed and stocked 221 ponds as against 145 constructed in 1959.

Free distribution of freshwater fish fry and fingerlings was almost double the 1959 figure and comparative statistics over the past four years are as follows:—

	1957	1958	1959	1960
Tilapia	1,194	15,934	40,965	73,442
Trichogaster	1,543	8,038	16,613	12,347
Cyprinus	—	254	1,298	14,564
Osphronemus	—	—	210	3,514
Helostoma	—	—	122	5,193
Carassius	—	—	—	2,857
	2,737	24,226	59,208	111,917

Applications for fish fry totalled 1,012—also nearly twice the 1959 figure (574) and once again the Land Dayaks (451) were in the majority. There was a significant drop in imports of Chinese carp fry—from approximately 72,000 in 1959 to approximately 58,000 in 1960—and this may be due, in part at least, to the success of the freshwater fisheries activities of the Department.

FORESTRY

Sarawak is one of the most heavily forested countries in the world. Three-quarters of the country is still covered with virgin or primary forest. Details are given in the following table:—

TABLE I.

STATEMENT IN SQUARE MILES OF FORESTED AND OTHER LAND

Division	Total area	FORESTED LAND		Total	OTHER LAND	PERCENTAGES		
		Perma-nent forest.	Other forest			Perma-nent forest	Other forest	Other land
First	3,464	564	1,379	1,943	1,521	17	39	44
Second	4,129	398	1,348	1,746	2,383	10	32	58
Third	22,465	6,598	9,346	15,944	6,520	29	42	29
Fourth	15,094	3,570	9,508	13,078	2,016	24	63	13
Fifth	3,190	352	2,350	2,702	488	11	74	15
Total Sarawak	48,342	11,482	23,931	35,413	12,982	24	49	27

Permanent forest means forest that has been constituted under the Forests Ordinance as Forest Reserve, Protected Forest, or Communal Forest, i.e. land dedicated to the *permanent* production of forest crops.

The tropical evergreen rain forest is divided into a number of distinct types, depending mainly on soil and elevation. The principal ones are described below:—

Mangrove forests

"Mangrove forests represent a build-up of land in sheltered situations along the coast, chiefly in the estuaries of the larger rivers. These forests are of particular interest to the plant ecologist in presenting him with a clear picture of a succession of types from the early pioneer stage to a vegetation closely resembling inland forest. In our territory there are extensive areas of mangrove in the estuaries of the Sarawak, Rejang and Trusan rivers, and many smaller patches elsewhere.

"The first step in the development of a mangrove swamp is usually the formation of a sand-bar near the mouth of a large river. This retards the current of the river, so that much of the silt brought down from the hinterland is dropped near or on the bar, with the result that mud-banks are quickly built up. As soon as a mud-bank is exposed by most low tides it is ready for colonisation by a few pioneer trees, principally *api-api* (*Avicennia*) in the more exposed situations, and *pedada* or *perepat* (*Sonneratia*) along sheltered river banks. These mostly form pure stands, although they are not infrequently found in admixture; and by their spreading roots they assist in holding up more silt, thus leading to their eventual disappearance as the ground becomes higher and less frequently inundated. The next stage, still on soft mud, brings in the *bakau* (*Rhizophora*) trees, the most familiar and most important of all mangrove species. On still higher banks, usually where the soil is changing from a soft mud to a stiff sticky clay, *berus* (*Bruguiera cylindrica*) then makes its appearance, and is followed by a succession of species of *Bruguiera*, culminating in *putut* (*B. gymnorhiza*) forest. As stage follows stage, the soil is raised at an ever

increasing speed, helped by the appearance of ground vegetation such as the *piai* (*Acrostichum*) ferns, and by a prawn-like creature, called *Thassalina*, that builds and lives in mounds several feet high.

"So the mangrove forest is always changing, building up to seaward and disappearing to landward. *Putut* is characteristically, though not invariably, its last stage, and thereafter inland forest trees begin to appear and finally take over the land. There are, however, two other special types of mangrove vegetation, both formed by palms, that are worthy of note. The first of these is the *nipah* swamp, which covers large areas, usually fairly far inland but still within the influence of salt water; here the almost stemless *nipah* palm (*Nipa fruticans*), from which are derived such varied products as thatch, cigarette-papers, sugar, alcohol, vinegar and salt, dominates the scene, although it is often mixed with scattered and usually miserable mangrove trees. The other type of palm vegetation is that of the tall, spiny *nibong* (*Oncosperma filamentosa*). Generally this palm occurs only here and there as a scattered tree in the drier parts of the mangrove, but in a few places it colonises appreciable areas, forming a thorny and unpleasant type of forest, which is not, however, without its uses, for the *nibong* is the only palm valued for its wood; nor should it be inferred that other kinds of mangrove forest are particularly pleasant, for they are mostly mud and mosquitoes.

"Mangrove forests are of great importance as sources of firewood and charcoal, the varied products of the *nipah* palm, and the wood of the *nibong* palm for fish-traps, the floors of native houses, and other uses."*

The total area of mangrove forest in Sarawak is estimated at 620 square miles, but only about half of this is true mangrove of good quality, the remainder being either poor forest in the drier parts of the swamps, or else thickets of the *nipah* palm.

Peatswamp forest

Peatswamp forest totals 5,662 square miles and is subdivided

* F. G. Browne *Forest Trees of Sarawak and Brunei*.

(see Table II below) into five types:—

	Area (square miles)
Mixed Swamp Forest	4,447
Alan Swamp Forest	454
Alan Bunga Forest	411
Padang Paya Forest	274
Padang Keruntum Forest	76
	<hr/>
	5,662

Much of the flat land along the coast is covered with this type of forest, which extends up the Batang Lumar almost to Engkilili, up the Rejang River to Kanowit, and up the Baram River to a short distance above the Tutoh junction. Over much of this area the land is actually below river level, but the forest is growing on a thick cushion of peat, which is usually fifteen to thirty feet thick but in places reaches sixty feet, and the surface of which is above the reach of the highest tides, and therefore never flooded by salt water. This peat consists of a soupy mixture in which branches, roots and trunks of trees in various states of decomposition are heavily compacted. The bacteria that normally decompose the leaves, and prevent them accumulating in the inland forest, cannot live without oxygen, and in the water-logged condition of the peatswamp the leaves accumulate faster than they are decomposed. Thus the surface level of the swamp gradually rises.

By applying the techniques of radio carbon dating and pollen analysis it has been shown* that the peat accumulates at an average rate of about one foot in one hundred years. The rate of accumulation is not necessarily uniform; it is possible that the rate is higher initially, and falls off as the thickness increases.

In an area investigated near Marudi, mangrove pollen was found at the base of the peat (thirty-five to forty feet thick), indicating that the Marudi area was probably near the coast about 4,500 years ago. "The present coast is thirty miles to the north and northwest, thus the Baram delta must have moved seawards at an average rate of about thirty feet per year during

* Geological Report 1959, page 16.

the last 4,500 years."* The peatswamp in the Kayangeran Forest Reserve west of the lower Lawas River was found to average fifteen feet thick and a sample from ten feet was just under 2,000 years old, indicating a slower rate of accumulation (average one foot in two hundred years).

The peatswamp forest is therefore quite a recent phenomenon, having developed over the past 5,000 years as the sea gradually retreated down the flat valleys of the Rejang and other rivers. Pollen analysis of samples taken at different depths in the peat shows how the forest has progressed through a succession of types, similar to the succession observed as one proceeds from the perimeter to the centre of one of the swamps today.

Accurate level surveys have shown that the mud or clay underlying the peat is now usually well below river level. This means that it is impracticable to drain the peat for agricultural development; the cutting of drains would let the sea in, rather than the surface water out. That is one reason why this type of land is best devoted to the cultivation of forest crops.

The trees are entirely dependent on the top three or four feet of the peat, which is about ninety-five to ninety-nine per cent organic matter, for their nutrition, and on rain water. The water table is at or near the surface of the peat, except towards the centre of the raised bog where it may be several feet below during a dry spell—in fact there is some evidence that the trees can die of drought. The water is the colour of strong tea, and has an acidity of pH 3·5-4. The trees that flourish in peatswamp are specially adapted to waterlogged conditions, either by possessing breathing roots (pneumatophores) as in *ramin* and *jongkong*, or by being able to raise themselves up on stilt roots or on a platform of radiating surface roots, as in *alan*. The flora is specialised and comprises 212 woody species, of which 180 are sufficiently important to include in the checklist.

The distribution of the forest types appears to be correlated to the age and state of development of the raised bogs. Near the coast on swamps of relatively recent origin mixed swamp forest occurs. This forest type is also found as a peripheral zone on more ancient bogs further inland where the central zone is

* Geological Report 1959, page 16.

largely dominated by *Shorea albida*, which is entirely absent from mixed swamp forest. The forest dominated by *Shorea albida* is conveniently subdivided on structure and floristic composition into three separate types: *alan* forest, *alan bunga* forest and *padang paya* forest. These forest types usually occur in a sequence towards the centre of swamps and there is a gradation from one type to the next. In the centre of the most highly developed bogs in the Baram, upriver from Kuala Bakong, the forest is open and stunted. This type is locally known as the *padang keruntum* and it represents the present final stage in the development of raised bogs and the sequence of forest types. *Keruntum* is the only tree that exceeds three feet in girth.

The mixed swamp forest differs from the other two types in that *alan* is absent. It is valuable because of the presence of *ramin*, which varies from about ten trees per acre in the richest areas (such as Pulau Brui) to one tree or less per acre in the poorer areas. Associated with *ramin* are *jongkong*, *sepetir paya*, swamp *kapur*, and the swamp *meranti* species, all of which are saleable. The *jelutong* tree, the latex of which is exported to the United States of America for conversion into chewing gum, is also an important component of this forest. The total basal area (all species) averages about 160 square feet/acre.

The *alan* swamp forest and the *padang paya* forest both comprise an almost pure crop of *alan*. There is usually a gradation from the former, which consists mainly of large hollow trees yielding a heavy red *meranti* type of timber, through an intermediate type known as *alan bunga* forest, yielding a light red *meranti* type of timber, to the *padang paya* forest, in which the trees rarely exceed five feet in girth. Some of the species of the mixed swamp forest, including *ramin* and *jongkong*, are found in the under-storey of these *alan* type forests. Basal area 200-280 square feet per acre.

Lowland forests

"In this term we may include all forests growing behind the beach and on relatively well drained soils from sea level up to an altitude of about 1,500 feet. This limit, of course, shows considerable variation in different places; but it is a convenient figure, not only because it approximates to the botanical

truth but also because it takes us up to, and even beyond, the level at which most of our forests will be profitably exploitable for many years.

"Wherever the natural vegetation has not been destroyed by man, Lowland Dipterocarp Forest covers the greater part of this zone, growing on all but the poorest or most specialised of soils. It is our richest type of vegetation, comprising a multitude of species; and no one species is dominant, but the forest is nevertheless dominated, as its name implies, by the one family Dipterocarpaceae, represented chiefly by the genera *Shorea*, *Dipterocarpus*, and *Dryobalanops*. A single acre of forest may contain ten or more large trees, often all Dipterocarps, and often all different species. The structure is an irregularly storied one, and the main canopy is often uneven, with an occasional giant towering above the rest. Lianes and rattans are numerous, but epiphytic plants, such as orchids, although abundant enough, are not very conspicuous, because they can find sufficient light only by growing high up on the big trees. The undergrowth is rarely very dense, and reasonably rapid if zigzag progress through the forest is possible on easy terrain."*

It is not known how many woody species occur in the lowland forests but the total probably exceeds 2,000, that is about ten times as many as in the peatswamp forest. An indication is given by the Arboretum in the Semengoh Forest Reserve near Kuching. In an area of fifteen acres nearly 250 species twenty-four inches and up in girth were found. If there can be so many species in one little patch of forest, it is easy to understand how there can be 2,000 or more all over Sarawak.

It is this great diversity of trees that makes the lowland forest difficult to work commercially. The trees yield heavy hardwoods, such as *selangan batu*, medium hardwoods, such as *kapur* and *keruing*, and light hardwoods, such as *meranti*. The total yield of merchantable timber seldom exceeds an average of ten tons per acre, and even then in most of these forests

* F. G. Browne *Forest Trees of Sarawak and Brunei*.

only the timbers that float can be extracted, because there is no way of getting out the sinkers.

Riparian forest is a special type of lowland dipterocarp forest. "It occurs on strips of flat land, subject to occasional flooding, along the banks of many rivers, and it is not infrequently cut off from the neighbouring lowland forest by a narrow zone of swamp. These riparian strips, known as *empran* in Sarawak, are usually quite narrow, and although they may occasionally spread out to a width of about half a mile, much of the original vegetation has been destroyed by cultivation, the soil being a fertile one."* It is on this type of land that the *engkabang* tree (*Shorea gysbertiana*) grows and produces the valuable nuts known abroad as illipe nuts.

Kerangas or heath forest

Kerangas is a comprehensive Iban term to describe land unsuitable for growing hill padi. Several different types can be distinguished on soil characters, vegetation, and elevation. In general, however, *kerangas* can be recognised by a coarse white surface sand, covered by an unusually thick layer of undecayed vegetable litter, and the drainage is usually impeded by a hard rock-like "pan", dark brown or blackish in colour. This pan may be close to the surface, or (in the type known as a giant podsol) several feet below. The soil is very poor, lacking in nutrients, and acid in reaction. The water draining off *kerangas* soils is usually the colour of strong tea, as in peatswamp forest.

Where shifting cultivation is widespread, the only forests left are mostly of the *kerangas* type, having been by-passed as unsuitable for cultivation. Near towns like Kuching and Miri, however, the Chinese will often clear the land in an attempt to grow something. After one or two crops the fertility of the soil is exhausted, and the area abandoned; it then reverts to a scrub consisting largely of *somah* and becomes waste land. If the forest is not cleared, it is possible to grow useful crops of timber and firewood on this type of soil. It is therefore current policy to discourage applications for this type of land, except

* F. G. Browne *Forest Trees of Sarawak and Brunei*.

for residential purposes, and to constitute all areas of sufficient size as permanent forests.

"On highly specialised soils we expect to find comparatively few species, and a tendency towards domination by one species. This is true of *kerangas*. Characteristic indicators include *ru ronang* (*Casuarina sumatrana*), *selangan kerangas* (*Hopea* sp.), *engkabang rusa* (*Shorea stenoptera*), *kawi* (*Whiteodendron moultonianum*) and some others; they are not normally found elsewhere, but they are usually common and conspicuous on *kerangas* although any one of them may be absent from large areas."*

Most heath forests are of little commercial value, but in some areas *bindang* (*Agathis alba*) is found; this timber fetches a high price in Australia as a peeler log, but unfortunately accessible supplies are nearly exhausted. Another useful timber found in Lundu district in this type of forest is *kapur empedu* (*Dryobalanops fusca*), which is currently being extracted for use in Kuching. These heath forests are pleasant places to walk and work in (extensive areas occur in the Bako National Park); the vegetation is interesting, and rich in orchids and pitcher-plants; there are no leeches; and the atmosphere is airier and drier than in other types of lowland forest.

Hill forest

As we rise above the level of the lowland dipterocarp forest at 1,500 feet we pass through a transition zone, not clearly defined, known as hill dipterocarp forest. Some species of dipterocarp are found in this zone and not lower down. With increase in altitude there is a rapid decrease in the number of dipterocarp species until they finally disappear at about 4,000 feet. Their place is taken by oaks, chestnuts, and conifers such as *Agathis*, *Dacrydium*, *Podocarpus*, and *Phyllocladus*, all of which may be seen for example above 3,000 feet on Mount Berumput in the Pueh range. These hill forests are as yet of little economic importance, except as a source of *damar daging*, the solidified resin of *Agathis*, resembling kauri gum—a famous New Zealand product of the nineteenth century.

* F. G. Browne *Forest Trees of Sarawak and Brunei*.

The areas in square miles of the different types of forest are estimated as follows:—

TABLE II

<i>Forest type</i>	<i>First Division</i>	<i>Second Division</i>	<i>Third Division</i>	<i>Fourth Division</i>	<i>Fifth Division</i>	<i>Total</i>	<i>Percent-age of land area</i>
Mangrove and Nipah forest	194	50	277	6	58	585	1
Mixed swamp forest	515	815	1,935	1,116	66	4,447	9
Alan swamp forest	56	103	204	91	—	454	1
Alan bunga forest	5	134	48	224	—	411	1
Padang paya forest	—	20	137	117	—	274	—
Padang keruntum forest	—	—	—	76	—	76	—
Kerangas forest	322	57	900	411	66	1,756	4
Other forest	851	567	12,443	11,037	2,512	27,410	57
TOTAL	1,943	1,746	15,944	13,078	2,702	35,413	73

Forest Policy

It is the policy of the Government of Sarawak—

(i) To reserve permanently for the benefit of the present and future inhabitants of the country forest land sufficient for—

(a) the assurance of the sound climatic and physical condition of the country; the safe-guarding of soil fertility and of supplies of water for domestic and industrial use, irrigation and general agricultural purposes; and the prevention of damage by flooding and erosion to rivers and agricultural land;

- (b) the supply in perpetuity and at moderate prices of all forms of forest produce within the country, required by the people for agricultural, domestic and industrial purposes under a fully developed national economy.
- (2) To manage the productive forests of the permanent forest estate to obtain the highest possible revenue compatible with the principle of sustained yield and the primary objects set out above.
- (3) To promote, as far as may be practicable, the thorough and economical utilisation of forest products on land not included in the permanent forest estate, before its alienation.
- (4) To foster, as far as may be compatible with the prior claims of local demands, a profitable export trade in forest produce.

Forest Management

A five-year Forestry Development Plan 1961-65 was approved by Government during the year. This is a continuation of the previous ten-year plan 1950-59. It provides for the examination of the remaining areas considered suitable for constitution as permanent forests, mainly peatswamp areas of the Second and Fourth Divisions. The main emphasis of the plan, however, is on the preparation of working plans for the systematic reaping of the present forest crop and its replacement by new forest crops. It provides also for greatly increased expenditure on silviculture, without which new forest crops cannot be grown.

Silviculture

The arrival of a silviculturist in April enabled good progress to be made in silviculture, the art and science of growing forest crops. His attention was devoted to examining the regrowth in areas of peatswamp forest felled during the past ten years, to determine the proportion of useful trees in the new crop and to devise methods of assisting them to compete with weed species. As a result of his investigations it seems likely that our present treatment, which consists in poisoning the unwanted trees left behind by the licensee to give more light to the regeneration, will have to be modified.

Forest Industries

The following industries are based on the forests of Sarawak :—

- (a) timber and plywood industry
- (b) firewood and charcoal industry
- (c) *jelutong* industry
- (d) *nipah* distilleries
- (e) illipe nuts or *engkabang*
- (f) other minor forest products.

(a) *The timber and plywood industry.* The timber industry enjoyed a boom and *ramin* reached the highest price yet recorded in the United Kingdom, 18s. 3d. per cubic feet c.i.f. This was in spite of the removal of the quota restriction on exports as from 1st January. An export duty on *ramin* logs was introduced effective 1st February on the recommendation of Mr. M. N. Gallant, O.B.E. (see last year's report), and was fixed at the ceiling rate of \$25 per ton for most of the year. This had the desired effect of reducing the level of log exports to a reasonable level. The boom in *ramin* was to some extent offset by the drop in the market for mixed light hardwoods. This was due to Japanese buyers over-stocking towards the end of 1959, and to the fact that they were dissatisfied with the quality of Sarawak logs owing to indiscriminate buying.

Figures for exports of timber, based on actual figures for the first nine months and estimates for the last three months, are as follows :—

<i>Ramin</i>		<i>Others</i>		<i>Total in round log equivalent Hoppus tons</i>	
Round	Sawn	Round	Sawn		
38,000	140,000	160,000	15,000		508,000

The principal markets for *ramin* are the United Kingdom, which takes rather more than half the total sawn exports, Europe and Australia.

Species other than *ramin* are exported mainly to Hong Kong and Japan in log form.

The opening of Sarawak's first veneer plant, at Selalang in the Third Division, was a feature of the year. The Sarawak Company (1959) Ltd., who own the plant, have a licence over some swamp forest in the Second Division. Peeler logs are put

through the veneer plant and logs unsuitable for peeling are converted in the bandsaw mill into planks, for making packing cases and for sale. The plant is processing *ramin* and *alan bunga* logs only at present, and trying to build up a market for *alan bunga* veneers, (or Sarawak lauan, as they prefer to call it).

(b) *The firewood and charcoal industry.* Firewood and charcoal are produced for the local market and for export to Hong Kong. There were no important developments during the year.

(c) *The jelutong industry.* *Getah jelutong* is the latex of a common tree in the peatswamp forests, *Dyera lowii*. Tapping is carried out under licences or permits, and export duty is collected on the product, which goes to the United States for the manufacture of chewing gum.

(d) *The illipe nut or engkabang industry.* The nuts are produced by species of *Shorea*, mainly *S. gysbertiana*, which fruit at irregular intervals. After the 1959 record crop there was no fruit in 1960, and none was expected.

(e) *Other minor products.* These include malacca canes, *damar*, wild rubber, palm sugar, etc., on which revenue is derived by way of export duties. The Forest Department exercises little control over the collection of such products, unless obtained in permanent forests.

Research

Good progress was made under the five-year programme 1959-63 approved by the Government last year. The main items of interest were:—

(i) Numbering and identification of over 3,500 trees two feet and up in girth in a fifteen acre plot in the arboretum at the 12th mile, Penrissen Road (Semengoh Forest Reserve). Here visiting botanists can see about 250 different species of trees, all numbered and card-indexed.

(ii) Production in duplicated form of a checklist of the trees of the peatswamp forests, including 180 species, mainly for the use of the field staff.

(iii) Production of duplicated "Notes on Sarawak Timbers" giving technical details of the strength properties, etc., of the commoner timbers in Sarawak, for people who use timber in Sarawak and for exporters.

Visitors

The Forestry Adviser to the Secretary of State visited Sarawak from 29th October to 11th November, and saw something of the peat swamp forests in the Third Division and the research forests near Kuching. Mr. J. Sinclair, Keeper of the Herbarium in the Singapore Botanical Gardens, spent three weeks in Sarawak collecting material, with special reference to the families Myristicaceae and Anonaceae in which he specialises.

NATIONAL PARKS

There were no new developments during the year. The Bako National Park, on the coast north of Kuching, had a successful season.

MINERAL RESOURCES

An outstanding event during 1960 was the 50th anniversary of the completion of the first commercial oil well in Sarawak. This well was drilled at Miri from a wooden derrick that is still standing, and was originally completed to a depth of 425 feet on 22nd December, 1910. It has since been deepened, and is still producing oil, now from depths between 956 and 1,096 feet. During the life of the oilfield, 618 wells have been sunk to depths between 158 and 8,911 feet, though only about 170 wells are now producing oil. Total production during the fifty years has been 75,943,130 U.S. barrels, and more than M\$13,100,000 has been paid to the Government of Sarawak in direct royalties.

Attention was first drawn to oil in the Miri area by C. C. de Crespigny, the first Resident of the Baram after that area was ceded to Rajah Brooke in 1882. His successor, Charles Hose, compiled over the years a map of the Miri area recording twenty-eight oil seepages. Some drilling was done by the Borneo Company Limited between 1888 and 1907, but the first thorough investigation of the area resulted from the issue of a prospecting licence to the Anglo Saxon Petroleum Company in 1909 after Hose had aroused the company's interest with maps and samples that he showed to them in London after his retirement in 1907.

Annual production had risen to 64,510 tons by 1914, and no less than 287,000 tons of oil was supplied to ships of the British and Allied Navies during the First World War. In the

early days of the field, the oil was taken in drums by lighters out to tankers lying off-shore, but this became impracticable as production rose, and the first "sea-line" or submarine pipeline was launched in 1914 from Tanjong Lobang to connect the shore to a loading point at sea. This sea-line consisted of some $2\frac{1}{2}$ miles of 6-inch pipe and was launched by successively towing out to sea three 4,500-foot sections that were later connected together. With this method of launching, adequate protection of the line from sea-water corrosion was impossible, and subsequent lines were built on land as single units and fully protected before launching. The most suitable place for this proved to be at Lutong, some eight miles from the first sea-line. For the second sea-line, 14,500 feet of 8-inch steel pipe was assembled on small trucks on a railway at right angles to the shore, protected with various bitumastic coatings, and finally wrapped in split palm to minimise abrasive action from the seabed. In 1917, this line was towed into position and sunk, being then the world's longest underwater pipeline. Over the years, a number of additional and replacement pipelines have been launched from Lutong, and there are now four loading berths, each equipped with two sea-lines, with terminals between three and four miles off-shore and capable of handling tankers up to 32,000 tons.

A small refinery to treat oil from the Miri field was built in 1917 near the shore end of the recently launched sea-line at Lutong. The refinery was gradually enlarged until, in 1941, it was processing about 1,250,000 tons of oil a year. Rebuilding after the refinery had been damaged during the Second World War was started in 1945 and, by 1947, throughput was back to 1,085,000 tons; it now averages 2,350,000 tons a year, and the distillation products comprise gasoline, naphtha, gas oil, two grades of diesel oil, and a waxy residue known as "Lutong residue". The feedstock for the refinery is now mainly crude oil purchased from Brunei Shell's Seria oilfield; part of this oil is also exported crude through Lutong. Although world supply and demand sometimes alters the distribution pattern, most of the crude oil goes to refineries in Australia, Japan and Europe, and the Lutong refinery products to Singapore, Indonesia, Japan and Europe. In addition, gas oil and gasoline are produced for

local consumption, and fuel is provided for ships bunkering off Lutong.

An extensive and systematic search for oil deposits outside the Miri field has been continuing throughout Sarawak ever since the granting of the first Oil Mining Lease in 1909, interrupted only by the two World Wars. The search on land, which has involved many types of geological and geophysical surveys, has also included drilling forty-nine exploration wells, as shown on the accompanying map, but has met with no success. The latest venture was the Ensalai well, which was drilled to a depth of 9,289 feet in 1960; this passed through formations that contain oil at Miri and Seria but failed to find oil. When this well was abandoned, Sarawak Shell Oilfields announced that this was the last promising prospect on land in Sarawak, and that future prospecting would be concentrated on the marine off-shore areas. Marine gravity and seismic surveys have been made during the last few years to determine the geological structures of the continental shelf and locate possible oil reservoirs. A marine drilling platform was erected at Siwa, eight miles from the coast, but both wells drilled from this platform were dry and were abandoned late in 1957; the platform stood in seventy-five feet of water and cost more than M\$2,000,000 to build. Because of the very high cost of drilling from fixed platforms, a mobile drilling barge, *Orient Explorer*, is being put into service in 1961.

Mineral Production. The 1960 value of minerals produced in Sarawak, including oil, was M\$10,085,148, this being an increase of M\$1,522,133 over the previous year, due to larger production of bauxite and gold. The value of mineral production has thus risen every year since 1957, when it was M\$5,348,000. Production consisted of bauxite, oil, gold, phosphate, stone, bricks and lime; of these, only bauxite, oil and a small amount of stone were exported. As most of the oil exported was purchased from the Brunei Shell Petroleum Company, and some of it was refined before export, the value of mineral exports, M\$292,915,595, was higher than that of production. About M\$792,298 was paid to the Government of Sarawak in royalties, export duty, company tax and mining rents.

The oil industry, which is concentrated in the Miri-Lutong area in north Sarawak, is described above. Bauxite is mined by

OIL EXPLORATION IN SARAWAK

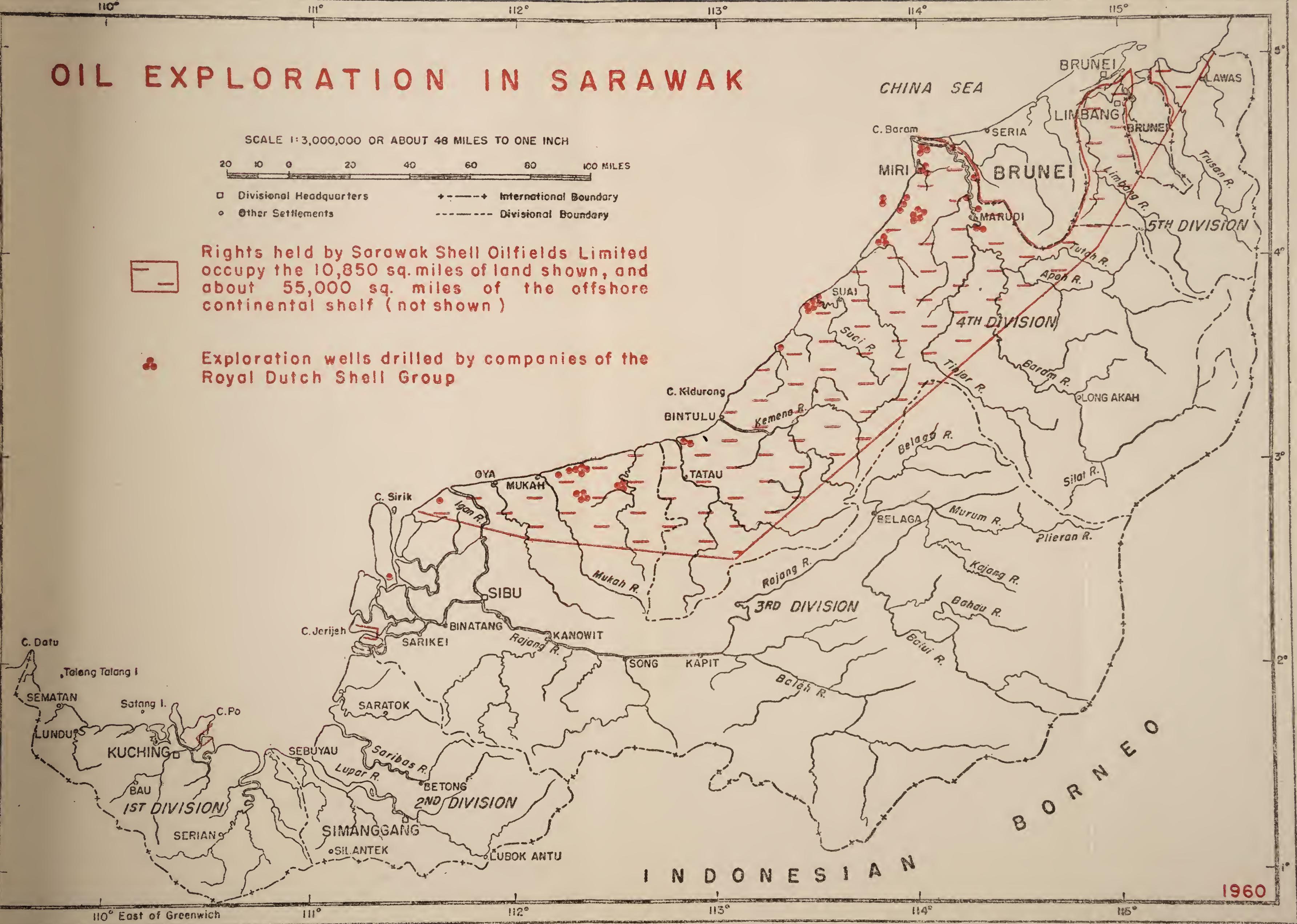
SCALE 1:3,000,000 OR ABOUT 48 MILES TO ONE INCH

20 10 0 20 40 60 80 100 MILES

- Divisional Headquarters
- + - - + International Boundary
- Other Settlements
- - - - Divisional Boundary

 Rights held by Sarawak Shell Oilfields Limited occupy the 10,850 sq. miles of land shown, and about 55,000 sq. miles of the offshore continental shelf (not shown)

 Exploration wells drilled by companies of the Royal Dutch Shell Group



Sematan Bauxite Limited in west Sarawak, using modern equipment to excavate, wash and ship the ore. The other mineral industries are run by small Chinese concerns. Nine gold mines are in operation in the Bau District, and building materials are produced at Kuching, Sibu and Miri. Mining leases in 1960 covered 2,997 acres, of which 2,517 acres were for gold and 480 acres were for bauxite. Sarawak Shell Oilfields Limited hold oil rights over 10,850 square miles of land and about 55,000 square miles of the off-shore continental shelf. Sematan Bauxite Limited hold an exclusive prospecting licence for the Tanjong Serabang area, and have applied for a mining lease for the Bukit Gebong area. General prospecting licences, some with special clauses, were issued during 1960 as follows: ten for coal; ten for iron and aluminium; three for gold; one for gold and diamonds; one for gold and mercury; and one for silica and glass sand.

Mineral Occurrences. Besides the minerals now worked, antimony, mercury and diamonds have been mined in the past. Small occurrences of silver, lead, copper, gypsum, ilmenite, zircon, monazite, iron ore, sapphire and kaolin are known, and salt is obtained by native methods from salt springs in the interior. Detailed descriptions of these occurrences and of the deposits mined are given in the Annual Reports and other publications of the Geological Survey which are listed at the end of Part III chapter II.

Aluminium Ore. Bauxite mining at Sematan in west Sarawak by Sematan Bauxite Limited during 1960 yielded 284,830 long tons of ore, of which 256,016 were exported and the remainder stock-piled. The deposit being mined was estimated to contain more than 2½ million tons of washed bauxite before mining began and is situated at Munggu Belian, about half a mile from Sematan village. The bauxite forms a bed about ten feet thick under a thin cover of soil in the hill at Munggu Belian, and extends under alluvium, where mining of recently proved additional reserves was started in 1960. The ore is mined by excavators, cleaned in a washing plant, stock-piled, and then loaded into steel lighters and taken to ocean freighters about three miles off-shore. About 4,000 tons of ore are mined each day for a recovery of about 1,000 tons of washed

bauxite; the mud content of the ore as shipped is stated to be only about four per cent. The tailings from the washing plant are led to a settling area; all bauxite fragments less than 1/16-inch have to be washed out to meet buyers' specifications, but the larger of these, which settle nearest to the washing plant, may eventually be recovered for sale. Shipments, blending, and washing plant operations are controlled by assays made in the company's own laboratory at the mine.

During 1960, the company applied for an extension of the area of their mining lease to permit mining round the margins of the existing lease, where bauxite has been proved under swamp and terrace alluvium. The company continued detailed prospecting at Bukit Gebong in 1960 and applied for a mining lease over 665 acres in October. They estimate the deposit to contain 1,589,381 tons of washed bauxite; the ore is more granular than that at Munggu Belian and rather poorer in grade, but has a lower titania content. Some prospecting was also done by the company at Tanjong Serabang and in the foothills at the northern end of the Pueh Range. No bauxite was found in the latter area, and the Tanjong Serabang deposits cannot yet be evaluated as detailed grid pitting is still required.

Recent work by the Geological Survey has established that all bauxite in the Sematan area has been formed from igneous and metamorphosed igneous rocks of intermediate to basic composition. Areas likely to contain bauxite can be delineated on a geological map with considerable accuracy where the bedrock is not concealed by alluvium; extensions under the alluvium must be sought by other means which are at present under investigation, as described below. Surface samples of bauxite derived from diorite and gabbro have been found near Tanjong Pelandok over a wide area; some are comparable in quality with the bauxite at Bukit Gebong, but detailed testing is necessary to evaluate the deposit. Bauxite indications were found in 1960 in other parts of west Sarawak, but also require further investigation.

During 1960, the Geological Survey made preliminary investigations to see whether geophysical methods could be used to locate occurrences of bauxite source rocks, particularly any that are hidden below alluvium and so would not be found by ordinary

surface mapping. The Geophysical Section of Overseas Geological Surveys, London, measured the magnetic susceptibility of representative samples from the Sematan and Lundu areas, particularly of bauxite source rocks. The results suggest that the susceptibility of the majority of rocks in the area is negligible, while that of the andesite source rock at Munggu Belian is much higher than that of any other rock in the area; any further occurrences of the andesite could, therefore, probably be detected by a magnetic survey. The possibilities of using a scintillometer to detect other types of bauxite source rock, and of using geophysical methods to determine the depth of alluvium, are being examined.

Gold. Production of gold in 1960 was 3,326 fine ounces, worth about M\$405,772, maintaining the increase in production that occurred in 1959. The gold was produced from nine Chinese-owned mines in the Bau District. Small quantities of gold occur in many parts of Sarawak, but the Bau area, twenty-five miles southwest of Kuching, has been the source of practically all the gold mined. Gold production from 1864 to 1960 is recorded as 1,221,864 fine ounces. Despite the long history of mining at Bau and the large amount of gold extracted, the deepest mine reached a depth of only about 200 feet, and the great majority of the underground mines have been small adits and shallow shafts. The amount of gold in depth is still unknown, as no suitable drilling or shaft-sinking has been attempted.

The final report on the investigation of ore types and treatment methods at Bau, by J. H. Harris and P. M. Sheahan, Research Division, Department of Mines, Federation of Malaya, was received in 1960 and is available to mine owners on request. Closer technical control of mining and ore treatment would have beneficial results, and improved gold extraction from the "clay-type" ores could be effected by the use of slime treatment plants, though this would probably only be economic if the scale of mining were increased.

Phosphate. Guano and rock phosphate occur in many limestone caves in Sarawak, and are valuable as fertilizers for the generally poor soils of this predominantly agricultural country. Production from the Niah Caves at Bukit Subis in the Fourth

Division showed a considerable increase in 1960, but detailed statistics are no longer kept. Small amounts of guano are also obtained from other caves in Sarawak for local use.

Constructional materials. Stone, gravel, bricks, tiles and lime produced in 1960 had an estimated value of M\$1,931,847. The brick, tile and lime industries are run mainly by Sarawak Chinese and operate on a small scale, serving the requirements of Kuching, Sibu and Miri. Stone production in 1960 was 218,352 cubic yards, valued at M\$1,562,996. Most of this was used for road construction and repairs. In recent years, the Geological Survey has found stone and gravel supplies near proposed road routes, thus permitting faster and cheaper road construction.

Coal. The Nippon Coal Mining Company continued prospecting the Silantek coal during 1960. Encouraging results were obtained from detailed tests of the coal in Japan, and studies of the cost of mining and transporting the coal were made. A technical mission from Japan will visit Sarawak in early 1961, and drilling will probably start soon afterwards to obtain samples of unweathered coal for further tests and to determine the number and extent of the seams.

Cement. All available information on raw materials for cement manufacture in Sarawak, including some previously unpublished analyses, has been assembled in a pamphlet that will be published by the Geological Survey early in 1961. The demand for cement appears to be sufficient to justify establishing a plant, and large amounts of the main raw materials are available in north and west Sarawak; only gypsum would have to be imported.

Dolomite. An extensive search for dolomite was started by the Geological Survey in collaboration with the Department of Agriculture in 1960. Large quantities of this rock are required as a fertilizer and to reduce soil acidity, particularly in pepper gardens, but no easily accessible deposits have yet been found. However, some of the limestone of the Melinau area in north Sarawak has been shown to be dolomitic and, although these deposits may prove to be too remote for development, they will be further investigated in 1961. Meanwhile, the collection of

samples from west Sarawak and their analysis in the Soils Laboratory will continue.

MINERAL PRODUCTION IN 1960

<i>Mineral</i>	<i>Production</i>	<i>Remarks</i>
OIL	433,313 United States barrels	Value M\$2,743,803; estimated royalty M\$339,741. Oil exports 34,420,961 bbls, value M\$287,911,869; the balance over Sarawak production was piped from Brunei. Part was exported as crude oil, and the remainder as gasoline, diesel oil, kerosene, gas oil, and fuel oil, refined at Lutong, Sarawak.
BAUXITE	284,830 long tons	Exports were 256,016 long tons, value M\$5,003,726, the remainder being stockpiled. Royalty M\$431,946 and mining rent M\$960.
GOLD	3,326 fine ounces	Estimated value M\$405,772, mining rents M\$6,753, no royalty. Output from nine mines in the Bau district.
PHOSPHATE	<i>Not available</i>	Guano and rock phosphate are extracted from the Niah Caves, Bukit Subis, Fourth Division, and small amounts from elsewhere, but production is no longer recorded.
BRICKS	1,911,000 pieces	Estimated value M\$275,755. Output by districts: Kuching 85,000; Sibu 1,600,000; Miri 226,000.
TILES	20,000 pieces	Estimated value M\$960.
LIME	15 long tons	Estimated value M\$1,250; made in Kuching area by Ban Hin Company.
STONE	218,352 cubic yards	Estimated value M\$1,562,996.
GRAVEL	71,326 cubic yards	Estimated value M\$90,886.

Values in Malayan dollars, M\$1 being worth Sterling 2s. 4d.

MANUFACTURING INDUSTRY

Manufacturing industry in Sarawak is still on a very limited scale and, apart from the very small-scale industries such as blacksmithing, furniture-making, tinsmithing, rice milling, repair services, etc., common in South-East Asia, is at present largely

confined to the manufacture of veneers, cigarettes, matches, textiles, alcoholic and non-alcoholic beverages, biscuits, soap, coconut oil, rubber footwear, plastic goods, ice, metal containers, roofing tiles, bricks, sanitary pipes, cosmetics and wooden ships and barges. Detailed production statistics are not available but the following figures give an indication of the general scale of manufacture in the year under review:—

- (a) *Alcoholic beverages*—three distilleries producing approximately 150,000 proof gallons per annum.
- (b) *Non-alcoholic beverages*—six manufacturers producing approximately 13 million bottles per annum.
- (c) *Soap*—three manufacturers producing approximately two million pounds per annum.
- (d) *Coconut Oil*—eight mills producing approximately 3,000 tons per annum. A further refinery has doubled the output of refined oil.
- (e) *Textiles*—one manufacturer producing approximately 24,000 dozen singlets and 31,000 dozen towels per annum.
- (f) *Cigarettes*—two manufacturers producing approximately 100 million cigarettes per annum. The import and excise duties are so designed as to stimulate the admixture of local tobacco, production of which has increased substantially in consequence.
- (g) *Metal Containers*—three factories producing approximately one and a half million containers per annum. The advent of a modern biscuit factory and the importation of kerosene in bulk instead of in 4-gallon containers have given considerable stimulus to this industry.

Statistics are not available to indicate the sources of funds for industrial investment. While it is known that foreign capital has participated in a number of concerns (notably bauxite, textiles, biscuits and rubber footwear) and has come from such sources as Canada, Switzerland, Japan, Hong Kong, Singapore and Indonesia, it is probable that local capital is responsible for the bulk of industrial investment in the period under review, and this has stemmed from savings derived from the high prices recently enjoyed by timber, rubber and pepper.

There are no statistics showing the composition of investment by industries, but so far as composition by sectors is concerned,

it may be assumed that direct investment in industry is, apart from electricity and water supplies, quarries and repair shops, almost wholly in the private sector. Public sector investment is concentrated on the provision of the economic infra-structure and on investment in agriculture, and direct investment in industry, other than electricity and water supplies, quarries and workshops, is at present purely nominal.

Sarawak is a free enterprise economy where public sector investment is concentrated on providing the basic facilities to enable the private sector to go ahead. Development expenditure is largely devoted to the improvement of communications and education and health services, and to the raising of the productivity of the worker in the agricultural sector. In addition, the continuance of political stability and all that this implies in terms of law and order, of a stable currency, and of stability in fiscal and financial policies, is a basic governmental aim designed to facilitate industrial growth.

Relations between employer and employee are satisfactory, foreign capital is encouraged and is guaranteed against expropriation, and there is a very little in the way of restriction on the repatriation of capital or the remittance of dividends. Exchange controls have been gradually relaxed in common with most of the rest of the Sterling Area. Local participation in the equity of companies predominantly financed by foreign investors is encouraged, but there is no rule requiring a minimum percentage of local shareholding. Industry is also given specific encouragement by governmental action.

While it is true that the wealth of Sarawak largely depends on the agricultural sector and will continue to do so for some considerable time, and that governmental efforts are therefore directed primarily to achieving improvements in this sector, it is also the case that industrial development is directly encouraged, not only by the improvement of communications and other basic facilities, but also by exemptions from import duty and by tax holidays. This encouragement has been given legal form in the Pioneer Industries (Encouragement) Ordinance.

In addition, Government is prepared where necessary and desirable to participate in joint ventures, through the Sarawak

Development Finance Corporation—or otherwise. Government is also participating in the development of factory sites for industry, both directly and through the Sarawak Development Finance Corporation; the Borneo Development Corporation and Borneo Housing Development Limited—both subsidiaries of the Colonial Development Corporation—also play their part in encouraging industrial growth.

The basic limiting factors to more rapid industrial growth are—

- (a) shortage of capital, since local capital is not only inadequate but still tends largely to look for commercial rather than industrial outlets;
- (b) shortage of managerial and technical personnel, since skills are frequently not available locally and appear to be equally in short supply in other parts of South-East Asia. Immigration policy permits the entry of persons possessing technical skills not available in Sarawak, but the employment of immigrant labour is relatively expensive, while local labour has not yet acquired the skills of, for example, Hong Kong, and is accustomed to wage levels in excess of such competitors;
- (c) the smallness of the domestic market. This is a factor which would be substantially alleviated by the establishment of a common market with North Borneo, the possibilities of which are being actively examined;
- (d) competition on the one hand with highly industrialised countries and on the other with territories such as Hong Kong, where wage levels are substantially below Sarawak levels;
- (e) transport difficulties, both internally in the form of the lack of an adequate road system, and externally in the form of high freight rates. This problem is aggravated by the low density of population, which makes all road and port development very expensive when measured in terms of revenue per head;
- (f) relatively high power costs owing to the absence to date of hydro-electric power sources and the small scale of plants and consequent high generation costs; there is as yet no integrated grid system;
- (g) lack of industrial statistics, the improvement of which is receiving active consideration.

VIII

CO-OPERATIVE DEVELOPMENT

TWENTY-FIVE new Societies with a membership of 1,008 were formed and registered during the year. Of these, seventeen were Savings and Loan Societies; two were Consumer Stores; one was a Padi Milling Society; two were Savings Societies; two were Padi Savings and one was a Wharf and Harbour Workers Society.

The Kuching Wharf and Harbour Workers Co-operative Society, which commenced operations in November, was undoubtedly the most interesting co-operative venture of the year. The objects of this society are mainly to find and to secure work for its members and to enter into contracts on behalf of its members. The society completed its first two months of operation with a very satisfactory surplus.

Twenty-five Orders of Cancellation of Registration were made and at the end of the year there were 178 societies on the register.

The most important casualty was the Kuching Co-operative Store Society Limited. Continued losses, lack of members' support and disregard of departmental advice compelled its liquidation. However, all members have received a dividend and the return of their share capital.

The Fish Marketing Society was also dissolved during the year. Again the disregard of departmental advice, especially when directed against their practice of credit sales, was the main cause of this society's downfall.

By dissolving inefficient and moribund societies it is planned to deploy the field staff to better purpose in the future.

The Department welcomed the arrival of Mr. P. Goullart, Co-operative Expert from the International Labour Office, in May, 1960. Mr. Goullart, who is on a one-year mission to

Sarawak, toured the country with a view to the formation of Co-operatives among the many Chinese communities. He was successful in bringing into being the first Chinese Store Society in the Fourth Division, and his excursion into the Fifth Division was very well rewarded by the resurgence of interest in the prospects of co-operative development.

Partly, as a result of Mr. Goullart's work the Chinese Stores Societies in the Third Division accepted the idea of forming themselves into a Local Co-operative Union. He also undertook investigations into the possibilities of opening up co-operative retail vegetable, fish and meat marketing in Kuching.

The idea of forming Local Co-operative Unions where suitable groupings of primary societies exist has been discussed and, in general, has been favourably received.

A deal of forward planning has taken place during the year including a request to the International Labour Organisation for the provision of a Co-operative Marketing Expert to advise on marketing problems. Arrangements were also made for the training of two more local officers in co-operative marketing techniques.

The Commissioner, who went on leave in June, visited Hong Kong and was able to make a brief examination of the Fish and Vegetable Marketing Organisations there. In England, he attended the Annual Summer School on co-operation run by the Colonial Office, and had several discussions with the Adviser on Co-operation to the Secretary of State. Before returning to Sarawak he made a brief two weeks' tour of Malayan Co-operatives.

After an adventurous journey by plane and on foot the first Co-operative Officers ever to visit the area reached the Kelabit country in December. They held several meetings and reported that the co-operative idea was very well received. It is planned to start the first society, a store, at Bario, as soon as possible, after an air service has been inaugurated.

Progress in the Fourth Division generally has been very satisfactory, and there are signs in the Kanowit District of the Third Division that the idea of savings societies which provide

also for the bulk purchasing of consumer goods has some attraction.

Owing to the high number of liquidations ordered during the year the membership of the Co-operative Central Bank dropped by thirteen and now totals 115.

The net surplus, which amounted to \$21,626.06, was again enhanced by what might be called the luck of the draw for once more the Bank drew 2,003 Sarawak Government Debentures valued at \$28,042, thus earning interest at 20 per cent.

Only one loan was issued by the Bank, but plans are now in hand to find suitable outlets for the Bank's funds.

A new approach to training was tried during the year and proved a great success. Numbers of Societies' Officers and Committee members were gathered in Sibu, Simunjan and Marudi to receive training at the hands of a Senior Co-operative Officer despatched from the Headquarter's office at Kuching. This officer also took the opportunity to give prepared lectures to the staff of the Department during his travels.

IX

SOCIAL SERVICES

EDUCATION

MOST schools in Sarawak are managed by local authorities, Chinese school boards, or churches and missions. The schools managed by these agencies differ in several important respects; in particular there is a wide gulf between, on the one hand, the schools under local authorities, churches and missions and, on the other hand, schools under Chinese school boards. The former group use English as the medium of instruction, with some use of the vernacular in the lower primary classes, while the Chinese schools use Kuo-yü, a fact which limits their enrolment to Chinese children. Recently there has been a growing realisation of the need to bring the different types of school closer together into a national system.

An important step towards uniting the different types of school was the introduction in 1956 of a grant code which put all aided schools on the same financial basis. Under this system all essential recurrent expenditure is met by the combination of grants-in-aid and school fees at prescribed rates. (A percentage of the total fees payable may be remitted to assist needy cases). Aided schools are also eligible for capital grants calculated as a percentage of approved expenditure. There is a unified salary scale for all teachers in aided schools and a provident fund scheme to help teachers on retirement.

Another move towards the creation of a national system of education was the establishment in 1957 of the first of a number of secondary schools, under Government management, using English as the medium of instruction and catering for pupils of all races.

Other measures taken to bring together the English-medium and Chinese-medium schools have included the production of some text-books with common content in both languages, the

setting of common papers in the two examination systems and the adoption of a similar organisation of terms and holidays. The difference in the medium of instruction, however, and the fact that the Chinese schools are in effect confined to pupils of one race makes a cleavage between the two systems which is especially marked at the secondary stage. It remains a principal part of the Education Department's policy to bring the different types of school into a uniform national system with the aim of developing among all the peoples a sense of common citizenship, brotherhood and loyalty.

As a further step towards the unification of the school system, His Excellency the Governor in an address to the legislative assembly in December, 1950, announced that it was proposed to invite all secondary schools which had not already done so to co-operate in the preparation of programmes for the conversion over a period of years, and stream by stream, to the use of English as the medium of instruction in all subjects except in the study of the indigenous and Chinese languages and literature which would be maintained.

Another major objective in the Department's policy is to overcome the wide disparity in educational opportunity between the Native peoples and the Chinese. There were very few schools for the Dayaks before 1947. Since then, schools serving the indigenous peoples have been established in all parts of the country. At first progress was rather slow as teachers with an adequate standard of education were not available. In recent years, however, progress has been more rapid. By the end of 1960 there were 42,481 Malay, Dayak and other Native pupils in school, representing 33.8 per cent of the school age population of these groups, compared with 60,727 Chinese pupils representing 80.3 per cent of the Sarawak Chinese school age population. It is at the secondary level that the disparity is most apparent: out of a total enrolment of 9,266 secondary pupils, 7,929 were Chinese and 1,229 were Native pupils.

Primary Education

Primary education is not yet compulsory. The full course is designed to last six years but in most rural Native schools it is at present possible to provide only a four-year course. It is

Government's aim to provide, as soon as possible, six years of primary education for all children.

At the end of 1959 there were 850 primary schools in Sarawak with a total enrolment of 94,773 pupils. The table at Appendix A shows the enrolments in different types of school.

Local authorities, in addition to managing their own schools, have a general responsibility for primary education in their areas. From the beginning of 1960 local authorities became responsible for meeting a percentage of recurrent expenditure on primary education in their areas. To encourage the authorities to finance education by a rating system, the central government introduced a grant of \$1 for every \$1 collected by education rates.

In most rural schools under local authorities the medium of instruction is partly the vernacular and partly English; frequently the vernacular is used in Primary One and Two, with English taught as a subject, and English begins to be used to some extent as the medium of instruction in Primary Three. In some areas, among mixed rural communities, multi-racial schools catering for Native and Chinese pupils have been established, using English as the medium from Primary One. The demand for English among the Native peoples is very strong and where the teacher has a good command of the language, English is increasingly used as the medium from the beginning of the course.

The standard of attainment in Native primary schools is still low. Owing to the sparse distribution of people in the interior of the country, many schools have sufficient enrolment to justify the employment of only one teacher. Pupils from small, distant longhouses have to attend the nearest school as boarders, under arrangements which are often far from ideal. During 1960 several local authorities took steps to improve conditions for boarders, some of them making provision for the employment of "school mothers" to do the cooking and supervise the boarders. The greatest need of the Native schools is for more trained teachers with a good level of education. It is satisfactory that there is a steady rise in the academic standard of Native students at Batu Lintang Training College.

The Group Headmaster scheme, and the Schools Broadcasting Service, mentioned below, are other means by which the level of achievement in Native schools is being improved.

In 1960 there were 231 aided primary schools under the management of Chinese school boards. These boards are elected annually or biennially by the local Chinese communities. Chinese schools receive grants-in-aid in the same way as schools under other voluntary agencies or local authorities. Kuo-yü is the medium of instruction, while English is taught as a subject.

There were 153 aided primary schools in 1960 under the management of the Anglican Church of Borneo, the Roman Catholic mission and three other Christian missions. In the towns, schools under these agencies use English as the medium (except for five schools using Kuo-yü) and though open to pupils of all races have an enrolment made up predominantly of Chinese pupils. At the smaller towns the church and missions have established schools which provide a boarding education for Dayak pupils but also admit day pupils from the neighbourhood, including Chinese and Malays. Village schools under church and mission management serving the Dayak peoples are very similar to the local authority Native schools described above.

Secondary Education

Secondary education is provided in the medium of English at four Government schools and at fourteen church and mission schools; and in the medium of Chinese (Kuo-yü) at fourteen aided schools under Chinese boards and two under missions; in addition there are six unaided secondary schools. Enrolments in the various types of secondary school are shown at Appendix A on page 227. The English-medium schools provide for Native and Chinese pupils; in Government schools the latter are drawn from Chinese-medium primary schools and are admitted into "transition" classes where they study English intensively for one year before entering Form One. There is an examination for the Sarawak Junior Certificate at the end of Form Three; the Cambridge Overseas School Certificate examination is taken in the Fifth Form; and a few schools have Sixth Forms which prepare candidates for the Cambridge Higher School Certificate examination and university entrance.

In Chinese-medium secondary schools, which are also known as "middle schools", all but a very small number of pupils are Chinese. English is taught as a subject in these schools. The "junior middle" course lasts three years and is followed by a "senior middle" course of three years. Public examinations are taken at the end of each stage.

During 1960 progress was made with plans for the introduction of woodwork in boys' secondary schools. The Australian Government, under the Colombo Plan, provided an instructor in woodwork at Batu Lintang Training College and valuable equipment and tools for secondary schools. The return from overseas of a few teachers trained in handicraft enabled a start to be made in some schools, and funds were approved for a scheme of capital grants to aided schools for the establishment of workshops.

Under arrangements made by the British Council, a specialist teacher of science from the United Kingdom visited Sarawak during 1960 and advised secondary schools on the teaching of science.

Government policy with regard to the provision of secondary education and the method of selecting candidates for entry to secondary schools had aroused controversy in 1959. The proposal to introduce age limits for admission to primary schools and the insistence on the regular annual promotion of pupils had also been much criticised. Government therefore invited Mr. David McLellan, C.M.G., Adviser on Education to the Commissioner-General for the United Kingdom in South East Asia, to review the provision of secondary education in Sarawak.

Mr. McLellan's report was published in February, 1960. The report upheld the arrangements which had been made for the introduction of age limits for admission to primary schools, and the policy of annual promotion of pupils, and approved in general the system of selecting the most promising candidates for entry to secondary schools. The report recommended the provision of additional sums for capital grants and loans to aided schools, with particular emphasis on the need to expand Native primary education, and proposed that new junior secondary schools should be established under Government management to cater for the

increased number of suitable pupils who would complete the primary course within the next few years.

Government accepted in principle the main recommendations of the McLellan Report and in June published a Sessional Paper which included the following proposals:—

(a) For the expansion of Native primary schools further grants and loans would be provided.

(b) For the expansion of other aided schools, additional grants and loans would be provided, but on a lower scale than for Native primary schools.

(c) During the next four years, additional secondary places would be provided by the establishment in the smaller towns of six new junior secondary schools, under Government management, and not by increasing the number of places at existing schools. Boarding accommodation would be provided at the new schools. The schools would cater for pupils of all races and the medium of instruction would be English. The curriculum would include practical subjects and would be related, as far as feasible, to the rural life of Sarawak.

(d) Existing Government and aided secondary schools, together with the expansion proposed, would provide for approximately thirty per cent of primary school leavers. Approval would be given for the establishment of unaided secondary schools which conformed to the Education Ordinance and to the general planning of education in the area concerned.

The Sessional Paper was approved in principle at a meeting of the legislative assembly held in August, and the additional capital sums required were voted.

Schools Broadcasting

Broadcast lessons to schools, which began in 1959, are at present directed mainly towards Native primary schools, with the emphasis on the teaching of English. The scheme is of particular benefit to remoter schools which can seldom be visited. There were 467 schools participating in the scheme in 1960, most of them Native schools using sets presented by the Asia Foundation. 850 teachers have attended eleven courses, which are prerequisite to the issue of a set, conducted by the Schools Broadcasting Officer.

Group Headmasters

The Group Headmaster scheme, under which experienced teachers seconded from Canada, Australia and New Zealand under Colombo Plan or other arrangements take charge of promising groups of Native rural schools, continued to function well. Requests for this kind of assistance were received from several local authorities.

Teacher Training

There are two teacher training colleges in Sarawak, one at Batu Lintang near Kuching for teachers using the medium of English, and one at Sibu for teachers using Chinese (Kuo-yü). Both are residential and provide courses of two years duration. Batu Lintang offers two courses. One is for students, mainly from the Native races, whose standard of education is below the full secondary level; these students will become teachers in Native primary schools. The other course is for students who have completed a secondary education; most of them will become teachers of higher primary or junior secondary classes. The training college at Sibu admits students who have obtained a senior middle certificate and trains them for service in primary and junior middle classes; the course includes the study of English. At the end of 1960, 105 students successfully completed the courses at Batu Lintang and fifty-two at Sibu.

Work continued in 1960 on the construction of permanent buildings at Batu Lintang, financed with the assistance of a large grant from the Colonial Development and Welfare Fund and a generous gift from His Highness Sir Charles Vyner Brooke, G.C.M.G., Third Rajah of Sarawak. Teaching blocks, assembly and staff quarters were completed and taken into use. The assembly hall, which will be known as Brooke Hall, was formally opened on September 5th by the Rt. Hon. The Earl of Selkirk, Commissioner-General for the United Kingdom in South East Asia.

Several highly successful vacation courses for teachers were organised by the staff of the Education Department.

Technical and Commercial Education

A Nautical School, established in Kuching in 1959 by the Education Department in co-operation with the Marine Depart-

ment, continued to train crews for Government and commercial vessels.

There was a considerable expansion of part-time technical and commercial classes, at present confined mainly to Kuching, some of which provide in-service training for technicians in various Government departments.

Overseas Education

There is no university in Sarawak. Scholarships for further education and training overseas are awarded by the Government of Sarawak and under schemes promoted by the United Kingdom, the Colombo Plan Governments, and other organisations. At the end of 1960, 106 students were studying overseas with the aid of scholarships on courses lasting at least one year.

Adult Education

Adult education is organised by the Sarawak Council for Adult Education, which receives grants from the Government, and by some other bodies. Classes, mainly of an academic nature, are popular in Kuching and Sibu but are difficult to organise in the smaller towns.

Borneo Literature Bureau

The Borneo Literature Bureau, which is sponsored jointly by the Governments of North Borneo and Sarawak, began publishing and trading activities with the help of a grant from the Asia Foundation. Eighteen texts of various kinds, ranging from pamphlets to books, had been produced by the end of the year. All these were especially written, translated or adapted, and illustrated to meet local needs in Borneo. Another twenty-two projects were in various stages of projection. A literature competition was held, with the object of discovering and encouraging local authors. Publication of *Dolphin*, a monthly magazine for school children, began in August and met with success. In the wholesale book trade, agents have been established in nearly every bazaar in the two territories, and stocks of desirable literature, especially books for students and for those with a limited knowledge of English, are being built up.

Libraries

The Sarawak Central Library, administered by the Education Department, now contains more than 30,000 volumes in English,

Chinese and Malay and provides a comprehensive service for Kuching residents and outstation members. The Central Library maintains contact with the locally run libraries now established at Miri, Sibu and Simanggang and with twenty-five other service points which are directly supplied. During the year, new out-station libraries were established in Kapit, Belaga and Balai Ringin.

Increasing use was made of all library services, particularly by students. The British Council continued to present books and periodicals and the Asia Foundation also made valuable presentations.

Sarawak Shell Oilfields Limited, in addition to much other help in the field of education, provided libraries for several more villages in the interior under the Shell Longhouse Libraries scheme, bringing the total number of libraries thus supplied to thirty-four. These libraries consist mainly of popular works in simplified English and are presented to communities where there is a number of literate adults and where it is otherwise difficult to obtain books.

School libraries benefitted from gifts of books by the Asia Foundation which included sets of well illustrated works on general knowledge and popular encyclopaedias.

British Council

Apart from the help given to public libraries, referred to above, the British Council continued to provide many forms of assistance to schools. Of particular value in 1960 was the visit, arranged by the Council, of Dr. Van Praagh, who gave advice to secondary schools on the teaching of science; this visit was most useful and productive. The Council continued to operate its service of "Teachers' Book Boxes" which provides teachers in rural schools with reading matter. In 1960, boxes were circulating to some 230 schools throughout the country. The British Council also maintained its regular showings of educational films for urban schools and teachers' vacation courses.

PUBLIC HEALTH

General

The year 1960 has seen considerable progress made in the plans initiated in 1959 for the reorganisation and consolidation

of the Medical Department's activities. The new Medical Headquarters administrative organisation is now complete and consists of the Director of Medical Services, the Deputy Director of Medical Services, the Specialist Health Officer who is the equivalent of what in other territories is termed the Assistant Director of Medical Services (Health) and the Principal Matron.

In addition to these four senior officers the World Health Organisation Senior Malaria Adviser is accommodated at Medical Headquarters to enable him maintain the closest liaison possible. Divisional Medical Officers, First to Fifth Divisions, have now been relieved of day to day clinical responsibilities and are thus able to travel more freely and to devote more time to district affairs. The Divisional Medical Officer, Fourth Division, is responsible also for the Fifth Division which until the end of 1959 was covered medically speaking by a visiting Medical Officer from Brunei. Medical work in the Fifth Division will soon be strengthened by the posting of a Medical Officer to Limbang, the divisional capital, and by the establishment of a small district hospital where formerly only a dispensary existed.

The staff position has been well maintained during the year. All super-scale and senior professional establishments are full with the exception of three vacancies for Medical Officers.

The Development Plan has progressed steadily. Extensive alterations and improvements have been made to the Sibu Hospital. These include the provision of a new theatre and X-ray unit and the provision of extra ward accommodation as a result of which the bed state has been increased from 190 to 280 beds.

Considerable improvements have been made to the Kuching Hospital, where the theatre unit has been modernised and equipped with a ducted air-conditioning system, and a new senior officers' clinic and casualty reception centre is under construction. The tender has just been awarded for a new 40-bedded hospital in Sarikei. Two new dispensaries, each with rest beds, have been built at Kabong and Ba Kelalan. Meanwhile plans for a new Central Medical Store to be built in the new wharf area at Kuching in 1961 are well advanced. Under the expanded development programme for 1961-63 provision is made

for the first phase of construction of a new 600-bedded hospital in Kuching and during the latter part of the year preliminary planning work commenced.

Training

The latest information available from the Training Branch of the Secretariat shows that there are eleven Sarawak students studying medicine overseas at the present time. In addition there are two students studying dentistry, eight taking nursing courses of one kind or another, one training in pharmacy and six attending Health Inspector Courses under Colombo Plan auspices. The above does not take account of those who are studying privately overseas and who number a further eight making a total of thirty-six in all.

Meanwhile the local training of nurses and other auxiliary staff on a departmental basis has continued. There are one hundred and twenty probationer nurses and twenty other categories of medical staff in training at the present time. The syllabus used in the nurses training schools at Kuching and Sibu is that approved by the General Nursing Council. Representations have recently been made to this Council to recognise the local training as contributing towards the period a Sarawak trained nurse need spend in studying in the United Kingdom preparatory to sitting for her state registration examinations. Women with a satisfactory standard of education are now coming forward for training in adequate numbers. It has consequently been decided that the need no longer exists to continue with the training of male nurses. Instead it is proposed to give existing male staff instruction in the diagnosis and treatment of the common diseases of the country and so fit them more adequately for their duties as hospital assistants.

Preventive and Social Medicine

The work of this section of the Department has been strengthened by the appointment of a Specialist Health Officer at Medical Headquarters and by the replanning of Divisional Medical Officers' duties already referred to. The Almoner who, until the end of 1959, was seconded for duties with the Social Welfare Committee, has now reverted to her departmental post and this also has served to strengthen the social aspects of our work.

Health education services are still in their infancy in Sarawak and will thus continue until more and better trained staff are available for this purpose. It is hoped to attach more emphasis to this work in future training schemes such as those for hospital assistant, health inspectors and upcountry midwives. During the year, however, advantage was taken of both press and radio to present various aspects of health education to the public. The Specialist Alienist, the Ophthalmic Specialist and the Superintending Dental Officer each conducted a series of broadcast talks, while opportunity has been taken to arrange for visiting experts to hold press interviews and to participate in "question and answer" programmes on Radio Sarawak. Lectures by various members of the staff have also been given to teachers and administrative officers in training. Divisional Medical Officers have introduced monthly newsletters for the benefit particularly of their upcountry staff. These contain educational material for the use of hospital assistants in the course of their duties.

In October the Government Information Service arranged a Press visit to various sections of the Medical Department in order that they might acquaint themselves with what we are doing and so be the better able to inform their public. The Department operated "Health Stalls" at Trade Fairs promoted by the Kuching and Sibu Junior Chambers of Commerce.

The Local Councils of Kuching and Sibu successfully organised anti-spitting and anti-litter campaigns during the year.

Anti-Malaria Campaign

Early in the year, plans formulated in 1959 to convert the World Health Organisation assisted Malaria Control Project to one of eradication were carried a stage further, and by the end of August a fully-functioning country-wide surveillance organisation had been established. In a number of areas where it is believed transmission has been interrupted, residual spraying has been stopped, while in others the hope is that surveillance results will point the way to an over-all cessation of spraying by the end of 1961, or early in 1962. The Tenth Borneo Malaria Conference was held in Jesselton, from December 13th to 16th, 1960, and was attended by delegates from the three Bornean territories and Indonesia. In addition the World Health Organisation malaria

eradication experts, from Geneva and Manila, were present, and also the World Health Organisation Advisers in Sarawak, North Borneo and Indonesia. An important subject discussed, was the future relationship between the eradication campaigns now in progress in Sarawak and North Borneo, and future malaria control activities on the Indonesian side of the border. Much of the success of the Sarawak Malaria Eradication Project will depend on the outcome of these discussions, since the possible re-introduction of malaria from Indonesian Borneo becomes of ever-increasing importance the nearer the Sarawak project draws to a successful conclusion.

Tuberculosis

With effective malaria control established, and eradication in sight, attention was turned during the year to the problem of the control of tuberculosis, now the most important public health problem in Sarawak. A plan to control tuberculosis was formulated during 1960. This project is receiving financial assistance from Colonial Development and Welfare Funds, from Colombo Plan sources, and it is hoped from U.N.I.C.E.F. in respect of certain items of equipment. Local staff to be engaged on the project have been trained during the year, and the first of the Colombo Plan personnel has arrived, in the shape of a T.B. Nursing Sister/Tutor. It is hoped to launch the scheme early in 1961, firstly in Kuching, then in the other main towns and finally spreading out into the rural areas.

Leprosy

Sarawak was visited in October by Dr. James Ross-Innes, Secretary of the International Leprosy Association and Medical Secretary of the British Empire Leprosy Relief Association. Tentative proposals for the eradication of leprosy in the next ten years were the subject of detailed discussion with him and these are now being given further consideration by Government. Meanwhile highly successful results are reported from the Rajah Charles Brooke Memorial Hospital, on the response of a selected group of patients treated with new experimental drugs. Plans are under way to give hospital assistants a special course in leprosy control in order that upcountry patients can be more effectively diagnosed and treated.

OTHER ENDEMIC DISEASES

Poliomyelitis

Early in the year a small outbreak of poliomyelitis occurred in the Fifth Division following a report of a similar outbreak in Brunei. Later another outbreak occurred in Kuching. In both instances there was the usual rush by the public to clinics and outpatient departments demanding poliomyelitis inoculation despite the Department's continual effort to persuade parents to bring their children to infant welfare clinics for routine protective injections. A total of twenty-two cases was reported of which one proved fatal. There were no cases of respiratory paralysis and almost without exception all occurred in children belonging to the 0-6 years age group.

Endemic Goitre

The salt iodisation plant installed in Sibu last year has operated satisfactorily. In response to a demand from the people that the salt should be distinctively coloured the Divisional Medical Officer has devised a modification of the plant to permit of this being done and full details have since been sent to the manufacturers who have evinced considerable interest in the idea. The upcountry slogan now is "Buy green salt and prevent goitre". Financial provision for the establishment of similar plants in Kuching to serve the upcountry areas of the Second Division, and in Marudi, to serve the Fourth Division endemic areas, has been approved in the estimates for 1961.

Iron Deficiency Anaemia

This condition is widespread and little is known of its precise aetiology. At Government's invitation the World Health Organisation Regional Adviser on nutrition recently visited Sarawak and in association with the doctor attached to a community development project in the Second Division, made an initial appraisal of the nutritional problems in the area and more specifically investigated the prevalence and nature of anaemia. Further investigations are now in progress in this area.

Hospitals and Dispensaries

In addition to the alterations and extensions to Sibu and Kuching Hospitals already mentioned, the most important event

of the year relative to the hospital section of the Department, was the take-over by Government of the Miri Hospital from Sarawak Shell Oilfields Limited. This was an event of some historic importance when it is recalled that the oil company have been responsible for all hospital services in this area for close on fifty years. It is a well-equipped general hospital of eighty-seven beds which means that, together with the Tuberculosis Hospital previously taken over by Government on 1st January, 1960, to which reference was made in last year's report, there are now 148 Government hospital beds in Miri. The oil company still retains an outpatient clinic for the benefit of its employees. The new Simanggang General Hospital which was officially opened in December, 1959, has completed a successful year's operation, and is now a popular and well-established institution.

During the year there has been a steady increase in the pressure on hospital beds in all hospitals. This has been particularly noticeable in Kuching, where, for example, in recent months, the daily bed state in one of the surgical wards designed for twenty-eight beds, has been something between forty and fifty. This only serves to highlight the need for a bigger and better hospital in Kuching, plans for which, as has already been explained, are now in hand.

The total number of beds, excluding mental hospital and leprosy patient accommodation, but inclusive of the few mission hospitals in the country, is now approximately 1,000 or about one bed per 745 of the population (744,391 census 1960).

Infant Welfare and Maternity Services

Sarawak is generally well served with trained midwives of which there are some 350 on the roll and of which about 150 are in central or local government employment. The work of these women has been reviewed during the year and it has been generally agreed that more emphasis should be placed on public health work and the care of children. With this end in view plans are being prepared to provide refresher courses so as to make the district midwife a more useful and more general purpose auxiliary worker until such time as fully trained health visitors are available. In this way it is hoped to spread infant

welfare work to the country districts from the main towns to which at present it is largely confined.

Dental Health

The dental service has been further expanded by the opening up of a dental centre in Miri which will serve the Fourth and Fifth Divisions. There are thus now five dental officers on the establishment. The dental nurse scheme which was recently introduced to enable further expansion of the school service has proved highly successful. So much so that approval has been given to its further development and to the sending of a further twelve girls for training under Colombo Plan auspices in the next three-year period.

Mental Health

Steady progress has been made in the field of mental health, particularly in the development of outpatients and follow-up clinics. A start has also been made to investigate certain problems relating to the varying incidence of mental disorder in the different races represented in Sarawak and the reasons therefor. One development of particular interest has been the establishment of a team specially trained to respond to any appeal from any part of the country for a trained escort in the event of a patient requiring such assistance to get to hospital. In this same connection special accommodation is now reserved on the regular coastal steamship service for the use of mentally-disordered patients.

Voluntary and Charitable Organisations

The Sarawak Branch of the British Red Cross Society has not only continued its various activities but during the year its Kuching Division has organised in liaison with the Medical Department of Government a blood bank at the Kuching General Hospital. The response by the public to appeals for blood donors has been generally satisfactory but in view of the increasing demands being made on the bank it is hoped that further help will be forthcoming in future. Other particularly commendable work done by the Kuching Division during the year has been the maintenance of their hostel for discharged hospital patients awaiting transport to their homes and for the relatives of those admitted to hospital from distant places. The Kuching Division

has also played a prominent part in the education of blind persons in handicrafts.

The Anti-Tuberculosis Society of Sarawak (A.T.A.S.) has expressed its wish to work in the closest liaison with Government in connection with the country-wide tuberculosis control project. Discussions have been held with the Society's working committee on the various forms of assistance which they hope to provide. The two tuberculosis longhouses maintained by the Miri branch of A.T.A.S. and the tuberculosis home near Kuching have all been fully committed during the year.

The work of the Salvation Army in connection with the Homes they separately maintain for both boys and girls has been of the greatest value to the Department. The girls' home cares also for old women in a special block set aside for the purpose and the children's section is particularly helpful in its acceptance of babies born of leprous mothers while the latter are undergoing treatment.

The Methodist Mission at Kapit on the upper Rejang recently completed the construction of a new hospital which was formally opened by His Excellency the Governor on 24th September. This is a well-appointed general hospital of about forty beds which, generally speaking, caters for the needs of the people in the Kapit area. It is normally staffed by two doctors and two nursing sisters assisted by locally recruited staff. This is the only sizeable mission hospital in the country. It receives no grant-in-aid from Government but is supplied with drugs and dressings free of charge from Government Medical Stores.

SOCIAL WELFARE

The Sarawak Social Welfare Council is an organisation composed of official and unofficial members from various races, creeds and walks of life who voluntarily give their time and service in an endeavour to help their less fortunate fellow-men. The purpose of the Council is, in consultation with Government, to guide welfare policy in Sarawak, and to disburse funds through the many other voluntary organisations throughout the country according to their needs. The Council's funds are derived from several sources, the main being an annual grant from Government. This in 1960 was \$190,000. The Council holds an annual

country-wide lottery. The 1960 lottery, drawn on 20th August, 1960, realized a net profit of \$54,603. The Council also receives five per cent of the proceeds of the Combined Sweepstake from the Sarawak Turf Club. Approach to the Council may be made directly by individuals, associations, societies, etc., and local welfare committees, through affiliation with the Council, are entitled to send delegates with full voting powers to the meetings of the Council which are held monthly in Kuching.

In addition to the considerable amount of welfare work performed in various fields throughout Sarawak, several events of note connected with this section took place. In the middle of the year the new sick bay in the Kuching Home for the Aged was completed at a cost of \$30,000. Its immediate occupation has provided not only more comfortable quarters and consequently better care and attention for the aged sick but it has also released the old building for receiving new admissions.

During May the Government post of Youth Welfare Adviser was filled. The appointment will enable a more systematic approach to be taken to cater for the increasing needs of the youth of different races in the many fields of youth service hitherto met, as far as possible, by voluntary efforts.

In February, and again in October, the Malayan Director of the Catholic Relief Services of America paid a visit to Sarawak to discuss a scheme for sending free supplies of wheat flour, corn-meal, rice, etc., for the poor. The scheme received Government's approval and the Social Welfare Council agreed to defray transport and handling charges. The distribution will be handled by the Catholic Welfare Council of Sarawak recently formed for this and other welfare purposes.

An inaugural meeting of the Sarawak Society for the Blind was held on 12th December, 1960. The Society was formed through the direct efforts of the Blind Fund Committee which came into being in June, 1959.

COMMUNITY DEVELOPMENT

The end of 1960 saw the completion of Phase II of the Budu Scheme, prior to entering its final three-year (hand-over) Phase in 1961, when the United Kingdom trainees will return to

assume leadership from the present expatriate field officers. The neighbouring Entabai Scheme satisfactorily completed Phase I, in spite of staffing difficulties in the field caused by the premature return to the United Kingdom on medical grounds of its officer-in-charge; in 1961 the scheme will enter Phase II which is expected to proceed generally along the lines of the comparable phase at Budu.

The second year of the four-year training phase of the Iban Teams Project was completed; this scheme represents an extension of the Budu/Entabai type of approach and was conceived originally as a means of achieving wide community development coverage at economic cost and with a minimum of expatriate supervision.

Trainees in the United Kingdom in connection with these schemes continued to make good progress and a further two boys were sent during the year.

The Padawan Scheme, serving an economically depressed area of Land Dayak villages in Upper Sarawak, completed its initial four-year phase and is expected to continue for a further three-year 'run-down' period under Land Dayak leadership. The hope that the scheme could be associated with 'Outward Bound' type courses may have to be left in abeyance until suitable personnel to undertake supervision are available.

The Long Lama Centre, designed to impart simple technical skills to interior peoples of the Fourth Division, has satisfactorily completed the second of its two-year experimental courses and is expected to continue for a further three years, with courses reduced to twelve months.

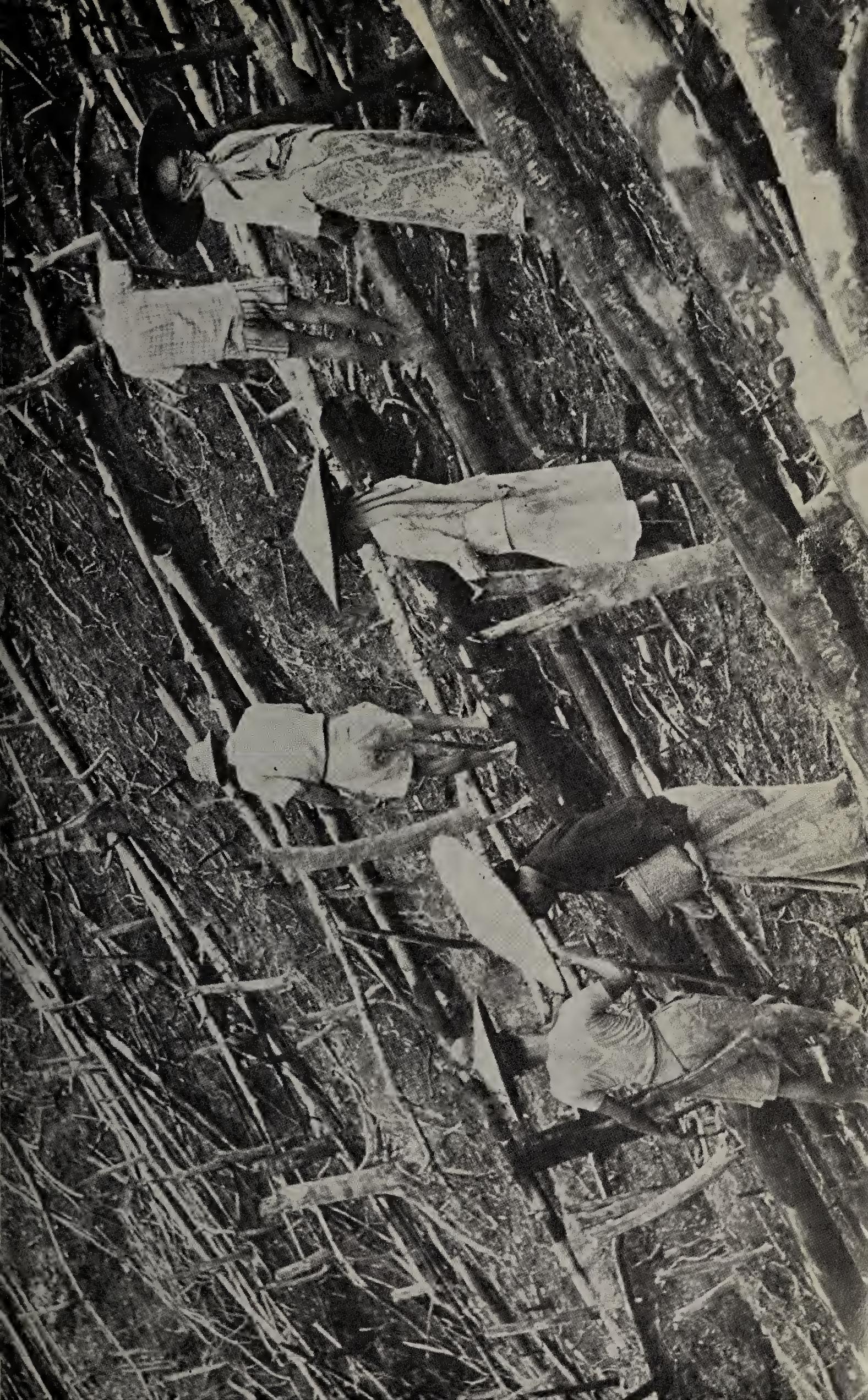
The Rural Homecraft Instructors Scheme, initiated on an experimental basis in order to gauge the demand for and value of classes for women in rural areas, completed its planned three-year period and instructors will be absorbed into the training programme for home demonstrators under the auspices of agricultural extension.

Planting hill rice. (*Soon Lee Guan*)

Overleaf:

Hill padi field. (*Soon Lee Guan*)

Weeding swamp padi. (S.I.S.)









The possibility was examined during the year of launching in an area of the Second Division a further specific community development scheme designed to meet the problems peculiar to upriver communities in contact with bazaar influences. By the end of the year a site had been provisionally selected, the scheme reached an advanced planning stage and was expected to be started in early 1961.

The Nutrition Adviser to the World Health Organization in the region visited the Budu/Entabai area in order to examine the possibility of conducting a nutrition survey through one of the established community development centres. His report was under active consideration with a view to implementation at the close of the year.

With the repatriation of the 1959/60 batch of United Kingdom Student Volunteers under the auspices of Voluntary Service Overseas, a further batch of seven for the period 1960/61 was accepted. Three are engaged in community development work in the Budu/Entabai area; three are teaching in mission schools and one teaching science in a Government secondary school.

The Community Development Committee, the body responsible for the planning and direction of specific community development projects and for ensuring adequate liaison is maintained between field workers and the Administration and technical Departments, met regularly throughout the year. At the close of the year, it was engaged in reviewing the adequacy of the current programme in relation to the wider needs of rural development as a whole, with particular emphasis on more conscious integration with local government growth.

YOUTH ACTIVITIES

Sarawak Youth Council

The Sarawak Youth Council, on which most of the youth groups in Sarawak are represented, continued to sponsor the formation of youth clubs and through Divisional Youth Councils undertook the training of youth leaders. Courses and visits to youth organisations in Malaya were arranged with the assistance of the Malayan Association of Youth Clubs. Two Council Harvesting hill padi. (*Hedda Morrison*)

members attended the 8th Council meeting of the World Assembly of Youth in Ghana, and two members sent to the Assembly's Seminar in Saigon.

Scouts

The Boy Scout movement made good progress during the year. Interest in expeditions continues to grow, and many groups have organised long distance journeys. Three scout students in Australia were chosen to represent Sarawak at the Jamboree. A site for a national headquarters has been found in Kuching, and a scout training ground is planned near Matang, a forested mountain area about twelve miles from Kuching. Sibu District has almost completed a headquarters building which should be opened shortly.

Guides

Following the rapid expansion during 1959 of the Girl Guide movement, 1960 has been more a year of consolidation. Of the three districts under the care of a District Commissioner, Sibu already has its headquarters, and the Headquarters Building Fund for national premises in Kuching makes good progress. There are companies and packs at nine isolated stations where contact is maintained through a monthly newsletter and occasionally through tape recordings. Guides and Guiders attended the inter-territorial camp held in North Borneo. A Guider is to be sent for four months' training in the United Kingdom.

Sports

To the existing national organisations governing sport, the Amateur Athletic Association, Sarawak Badminton Association, and Sarawak Football Association has been added the Sarawak Federation of Basketball Associations. They all promote sport through inter-Divisional and inter-Territorial competitions. There are many local leagues, with association football being undoubtedly the sport with the greatest following. Basketball must lie a close second. Volley-ball is fast growing in popularity particularly in outstation areas where first-class fields and courts remain an urgent need. Rugby, hockey and table tennis are also played extensively.

X

LEGISLATION

THE Ordinances and subsidiary legislation in force prior to the 31st December, 1958, are to be found in the Revised Edition of the Laws of Sarawak. Legislation enacted since the 31st December, 1958, is contained in the annual volumes of the Ordinances and subsidiary legislation.

The legislative programme for 1960 was a heavy one. Twenty-one Ordinances were enacted including a Merchant Shipping Ordinance of 279 sections, an Inland Revenue Ordinance of 105 sections and a Road Traffic Ordinance of 116 sections. Each of these pieces of legislation, and particularly the Merchant Shipping Ordinance, has necessitated the drafting of a very large volume of subsidiary legislation to render them fully operative.

A beginning was made in the work of collating the Local Government legislation preparatory to its revision and it is hoped that during 1961 the revised edition of this legislation, which the Attorney-General is empowered by the Revised Edition of the Laws Ordinance, 1956, to prepare, will be completed.

Of the twenty-one Ordinances passed those which deserve comment are—

The Sarawak Rangers Ordinance, 1960 (No. 1 of 1960)

This Ordinance consolidated and amended the existing legislation relating to the Sarawak Rangers so as to bring it into harmony with changed circumstances and to reflect the new footing upon which the Rangers' service with the British Army has been since 1st April, 1960.

The Merchant Shipping Ordinance, 1960 (No. 2 of 1960)

This Ordinance repeals the existing local legislation relating to Merchant Shipping and enacts in its stead legislation based on the Aden Merchant Shipping Ordinance. It repeals, in their

application to Sarawak those provisions of the United Kingdom Merchant Shipping Acts, other than requirements as to registration of British ships, which now apply to Sarawak and replaces them with similar local provisions. It is proposed to bring the Ordinance into force on the 1st April, 1961.

The Advocates Ordinance, 1960 (No. 3 of 1960)

This Ordinance amends the Advocates Ordinance (Cap. 110) in the following respects:—

- (a) by making it clear that the possession of the professional and other qualifications required merely makes an applicant eligible for and not entitled to admission. To gain admission it is now essential that applicants must have Sarawak connections or a residential qualification of six months except in respect of advocates in resident practice in Brunei or North Borneo. Special provision has been made to render them eligible for admission after eighteen months resident practice in their own territory;
- (b) by providing that an applicant for admission as an advocate must satisfy the Chief Justice that he is in all respects a fit and proper person to be admitted;
- (c) by limiting the period of a temporary licence to six months and by restricting, except on special grounds, the admittance of outside advocates for the purpose of a particular case; and
- (d) by establishing a new Roll of Advocates.

The Debtors Ordinance, 1960 (No. 4 of 1960)

This Ordinance makes provision for the arrest, examination, attachment and imprisonment of debtors and for matters incidental thereto. The Ordinance, which repeals and replaces the existing Judgment Debtors Ordinance (Cap. 7—1948 Revised Edition), provides a more up-to-date enactment applicable to Magistrates' Courts as well as the High Court, and follows the pattern of similar legislation in other territories.

The Workmen's Compensation (Amendment) Ordinance, 1960 (No. 5 of 1960)

This Ordinance makes a short but important amendment to the Workmen's Compensation Ordinance. It amends the definition of "workmen" so as to bring within its scope persons working for an employer under a contract for services as well as persons employed under a contract of service.

The Currency Ordinance, 1960 (No. 12 of 1960)

This Ordinance implements a new Agreement made between the Governments of Sarawak, North Borneo, the Federation of Malaya and the States of Singapore and Brunei for the establishment of a Currency Commission. The Agreement is similar to the former Agreement made in 1950 and was made necessary because of the changed political status of the Federation of Malaya and the States of Singapore and Brunei.

The Inland Revenue Ordinance, 1960 (No. 13 of 1960)

This Ordinance repeals the Income Tax Ordinance (Cap. 30) and replaces it with a new system of direct taxation providing for four separate categories of tax namely, property tax, salaries tax, profits tax and interest tax. It gives effect to the recommendations of the Commission of Inquiry on direct taxation. The provisions relating to property tax have not been brought into force and cannot be brought into operation without the approval of Council Negri.

There are two rates of profits tax, namely, thirty per cent for bodies corporate and five per cent for unincorporated businesses.

The Road Traffic Ordinance, 1960 (No. 14 of 1960)

This Ordinance repeals and replaces with amendment the Road Traffic Ordinance (Cap. 131). The most important respects in which it has been amended are in the provisions relating to the control of commercial road transport.

The Trades Licensing (Amendment) Ordinance, 1960 (No. 15 of 1960)

The main amendments to the Trades Licensing Ordinance which this Ordinance effects are complementary to the widening of the field of direct taxation which the Inland Revenue Ordinance, 1960, achieved and follow the recommendations in this respect made by the Commission of Inquiry on Direct Taxation.

The opportunity was taken to amend the provisions relating to penalties for late payment of licence fees and to re-classify some of the bazaars.

The Pensions (Amendment) Ordinance, 1960 (No. 17 of 1960)

The main purpose of this Ordinance is to amend the Pensions Ordinance so as to render eligible for pensions certain employees

of the Kuching Municipal Council and of other local authorities and to enable service in any other public body declared by the Governor in Council to be regarded as service under Government for the purposes of the Pensions Ordinance.

The opportunity was also taken to make certain necessary amendments to the definition of "public service", to provide the same retiring age for women as for men and to make certain amendments to the definition of "scheduled Governments" which the attainment of independence by Cyprus and Somaliland made necessary.

The Widows' and Orphans' Pensions (Amendment) Ordinance, 1960 (No. 18 of 1960)

The amendments which this Ordinance makes to the Widows' and Orphans' Pensions Ordinance are complementary to those made to the Pensions Ordinance to provide for service under the Kuching Municipal Council and other local authorities being regarded as service under the Government. It also makes a complementary amendment to the definition of "public service".

XI

LAW AND ORDER

JUSTICE

Introduction

Apart from Imperial legislation, whether by Order in Council or otherwise, the law of Sarawak is to be found mainly in local ordinances and native customary law. Chinese customary law, chiefly in matrimonial matters and in relation to inheritance is recognised to a limited extent, but only in so far as such recognition is expressly or by implication to be found in a local ordinance.

Where Sarawak law is silent, the Courts apply the common law of England and the doctrines of equity, together with English statutes to the extent permitted by the Application of Laws Ordinance (Cap. 2), in so far as the circumstances of Sarawak and its inhabitants permit and subject to such qualifications as local circumstances and native custom render necessary.

The Supreme Court

On the 1st December, 1951, the Sarawak, North Borneo and Brunei (Courts) Order in Council, 1951, came into force. This Order in Council established one Supreme Court of Judicature, consisting of a High Court and a Court of Appeal, for Sarawak, North Borneo and the State of Brunei. The Court of Appeal has its headquarters in Kuching, but sits as occasion may require in other places of Sarawak, North Borneo and Brunei.

The present disposition of the Judges is as follows: the Chief Justice at Kuching, the Senior Puisne Judge at Jesselton, North Borneo, and three other Puisne Judges, one at Kuching and another at Sibu. One Judge is usually absent on leave.

During the year two hundred and two criminal cases and two hundred and ninety-seven civil actions were heard in the High Court as compared with two hundred and forty-five criminal cases and three hundred and fifty-three civil actions heard in 1959. In the Court of Appeal five criminal appeals and fourteen civil appeals were heard as compared with eight criminal appeals and sixteen civil appeals heard in 1959.

Courts of Magistrates

The Courts presided over by magistrates are—

- (a) Courts of Magistrates of the First Class or District Courts;
- (b) Courts of Magistrates of the Second Class or Police Courts which are known in their civil jurisdiction as Courts of Small Causes; and
- (c) Courts of Magistrates of the Third Class or Petty Courts.

Apart from three legally qualified magistrates who sit at Kuching and Sibu, the remainder are administrative officers who do magisterial work, in Kuching full time and in other districts and outstations as part of their duties.

Under the provisions of the Courts Ordinance (Cap. 42), in the exercise of their civil jurisdiction Courts of Magistrates have jurisdiction in every civil matter of which the value in dispute does not exceed in the case of the Magistrates of the First Class one thousand dollars or where the Chief Justice, by notification in the *Government Gazette*, confers upon any magistrate special jurisdiction then in a Court presided over by such magistrate three thousand dollars; in the case of the Magistrates of the Second Class five hundred dollars; and in the case of the Magistrates of the Third Class one hundred dollars. Courts of Magistrates have no jurisdiction in proceedings in connection with the recovery of immovable property where there is a *bona fide* dispute as to title registered under the Land Code; application for partition of immovable property; the specific performance or rescission of contracts; the cancellation or rectification of instruments; the enforcement of trusts; and in connection with application for declaratory decrees.

In the exercise of their criminal jurisdiction the powers of the Courts of Magistrates are as provided in the Criminal Procedure Code as follows—

Courts of Magistrates of the First Class may pass a sentence of imprisonment for a term not exceeding twelve months and a fine not exceeding two thousand dollars, and where the Governor by notification in the *Gazette* declares that the magistrate specified in such notification shall be a Stipendiary Magistrate, a Court presided over by that

magistrate may pass a sentence of imprisonment for a term not exceeding three years and a fine not exceeding five thousand dollars.

Courts of Magistrates of the Second Class may pass a sentence of imprisonment for a term not exceeding six months or a fine not exceeding one thousand dollars.

Courts of Magistrates of the Third Class may pass a sentence of imprisonment for a term not exceeding three months or a fine not exceeding five hundred dollars.

The Court of any magistrate may pass any lawful sentence, combining any of the sentences which it is authorised by law to pass.

Native Courts

Apart from the Courts mentioned in the preceding paragraph there are the Native Courts constituted under the Native Courts Ordinance (Cap. 43). These Courts are the District Native Court, the Native Officer's or Chief's Court and the Headman's Court. An appeal lies from the Headman's Court to the Native Officer's or Chief's Court, and from the latter to the District Native Court and then to the Resident's Native Court. A further appeal may be made to the Native Court of Appeal by way of a case stated on a point of law or native custom. As a general rule the Native Courts are competent to try only cases in which all the parties are natives, including cases arising from the breach of native law and custom; civil cases where the value of the subject matter does not exceed fifty dollars, and claims to untitled land.

Generally, a comparison of the overall figures of cases tried in the lower Courts in 1960 and 1959 shows no substantial difference in the number of both criminal and civil cases heard. The incidence of crime, particularly serious crime, fortunately remains low.

There has been no important change in the organization of the Supreme Court during the year.

Taxation of Costs in High Court and Court of Appeal

The Chief Registrar heard and disposed of thirty Bills of Costs submitted by successful litigants in pursuance of the Sarawak, North Borneo and Brunei (Scale of Costs) Rules, 1959.

Probate and Administration

The Registrar in his capacity as Probate Officer at Kuching in respect of all estates, other than Malay and Dayak estates,

assumed official administration of three deceased persons' estates, as compared with thirteen estates in 1959 in pursuance of the powers conferred upon him by section 3 of the Administration of Estates Ordinance. Of those estates which have been wound up by the Registrar, the assets and property of the estates, after payment of the deceaseds' just debts and liabilities, are distributed to the heirs and beneficiaries according to the shares to which they are entitled by law and custom.

Three grants of probate and seventy-one Letters of Administration were issued during the year as compared with four grants of probate and eighty-eight Letters of Administration issued in 1959.

One resealing of a grant of probate issued elsewhere in the British Empire was effected. There was also one such resealing made in 1959.

It is to be noted that elsewhere than in Kuching deceased persons' estates were dealt with by other Probate Officers under section 2 of the Administration of Estates Ordinance.

Lunatic Persons' Estates

In his capacity as Official Assignee, the Registrar administered one new lunatic person's estate during the year bringing the total to three lunatic persons' estates under his administration.

Bankruptcy

Seven creditors' bankruptcy petitions were lodged and dealt with, as compared with four creditors' and one debtor's bankruptcy petitions lodged in 1959.

Although some judgment creditors rely on the High Court (Execution Proceedings) Rules as machinery in obtaining payments from their debtors, the tendency seems to indicate that creditors are inclined to resort to bankruptcy proceedings for the recovery of their moneys.

Deeds and Bills of Sale

One thousand eight hundred and fifty-eight documents were registered under the provisions of the Registration of Deeds Ordinance (Cap. 89), which is now cited as the Hire Purchase Registration Ordinance (Cap. 71), as compared with one thousand three hundred and thirty-one documents registered in 1959. The majority of these were hire purchase agreements, powers of attorney and other miscellaneous agreements.

Sixty-two bills of sale were registered under the provision of the Bills of Sale Ordinance (Cap. 68). In 1959 the number was eighty-four.

Business Names and Limited Companies.

One hundred and forty-four new partnership businesses were registered during the year as compared with one hundred and twenty-three in 1959. The majority of these were dealers in general merchandise and groceries. In 1958 the number was eight hundred and ninety-six. The large number of businesses registered in 1958 was due to the extension of the provisions of the Business Names Ordinance in 1958 to all firms in the Kuching District carrying on a retail or wholesale trading business on land held under title whether those firms are engaged in export or import trade or not, but excludes stall holders in markets. It also excludes village shops where they are not situated on land held under title.

Thirty locally incorporated and eleven foreign limited liability companies were registered under the Companies Ordinance (Cap. 65), as compared with twenty-three and twelve respectively in 1959. The majority of these were traders in general merchandise.

Patents and Trade Marks

Six grants of "Exclusive Privileges" were issued as compared with four in 1959. All of these are United Kingdom patents.

Four hundred and twenty-three applications for registration of trade marks were received and attended to during the year. Of these, registration of one hundred and fifty-nine marks was finalised. In 1959, eighty-eight marks were registered. Four renewals of registration of trade marks were effected during the year. No renewals were effected in 1959.

Trust

In the absence of a Public Trustee in Sarawak the Registrar administers twenty-two trust estates. The majority of these were entrusted to him by orders of the Courts. The Registrar also administers a trust estate created by the Will of a deceased person.

In 1959 the Registrar administered fifteen such trust estates.

Court Fees, Fines and Departmental Revenue

The volume of transactions under this heading remains heavy. The revenue collected during the year amounted to \$233,715 as compared with \$203,662 in 1959.

Moneylenders

At the close of the year there were ten moneylenders on the Register. There were eleven in 1959. Four moneylenders' licences were cancelled during the year.

Probation (Kuching)

During the year twenty-seven cases of offenders were referred to the Probation Section for investigation of their home circumstances by the Courts in Kuching. Of these four concerned young adults between the ages of nineteen and twenty-two years; the rest were juvenile offenders of eighteen years and under. One case was transferred from Sibu for supervision. The following figures show how they were disposed of:—

Placed on probation of good conduct under the supervision of probation officers for 1-3 years	19
Transferred from Sibu	1
Bound over to be of good behaviour for varying periods	5
Discharged with caution	1
Committed to Boys' Home	1
Sentenced to imprisonment	1
Total	28

Twenty cases were brought forward for supervision from the previous year and one from 1958. In the course of the year eighteen cases completed their probation period. The year ended, therefore, with twenty-three cases under "active" supervision. The majority of these are juveniles at school while some are working. They seem to be getting on well.

Regular visits were made to the homes of probationers and reports were received from them at regular intervals. Old cases were looked up from time to time as part of the after-care service provided by the Section. Probationers who were in school or were attending adult education night classes were often assisted in their lessons. Employment was found for several youths.

Parole, Discharge and Remand

Ten cases were discharged during the year from the Sarawak Boys' Home on parole or on the completion of their sentence. Supervision was undertaken in all these cases during the period of parole, and thereafter general after-care was extended as in all the

discharged and post-probation cases. This after-care service is, of course, limited to those who have their homes in or near Kuching.

Miscellaneous Cases

Apart from assisting parents or guardians in the care and treatment of children beyond their control and school truants, the Probation Section also gave advice, on referral, to parties in matrimonial disputes and in other domestic affairs.

Visits were paid from time to time to several young prisoners detained in Her Majesty's Prisons in Kuching during the pleasure of His Excellency the Governor, and reports on their progress, together with suggestions for varying methods of treatment and rehabilitation were submitted to the Superintendent of Prisons. The Section also undertook the after-care of several discharged prisoners.

Legislation

The coming into force of the Protection of Women, Young Persons and Children Ordinance (No. 3 of 1959), early in 1959, made it possible for children or young persons beyond control or in need of care or protection to be dealt with by probation and other measures (such as institutional treatment) at the pre-court stage. This, together with the subsequent gazetting of three homes as approved institutions for the purposes of the Ordinance, now enables cases of early delinquency to be treated.

Staff

The Probation Officer who was officially appointed Secretary to the Sarawak Social Welfare Council in October, 1959, continued to act as such in addition to his probation duties during the year. The Council is a Government sponsored welfare body functioning on a country-wide basis. To it are affiliated voluntary welfare organisations on divisional and district levels.

Staff Training

In April, 1960, the Supreme Court Librarian, Mr. Lo Hon Syn, left for Hong Kong for a practical course of training in the technique of the keeping of a law library. The course lasted for two months and proved to be highly interesting and profitable.

In August, the Assistant Probation Officer, Mr. Wang Teck Huat, left for Japan for a practical course of training in probation work under a Colombo Plan Scholarship. The course, which was

intensive, lasted three months, also proved to be highly interesting and profitable.

In-service Training

The system of training which this Department introduced in 1958 whereby Registrars and Assistant Registrars stationed in North Borneo and Brunei are to have the opportunity of working in the Supreme Court at Kuching for a few months has worked out very well. Brunei was the first to take advantage of the scheme by sending the Assistant Registrar at Brunei Town to Kuching for training for three months, followed by the Registrar of the Supreme Court at Kuala Belait.

Simanggang has also sent their Court Interpreter to study court procedure.

When conditions permit it is expected arrangements will be made for Court Interpreters in other districts of Sarawak to take advantage of the training.

Establishment

The newly appointed Chief Justice, Sir John Ainley, arrived in Kuching to take up his appointment on 19th January, 1960.

CONSTABULARY

General

Another year of peace and calm in Sarawak enabled a fair proportion of police effort to be devoted to improving general standards within the Force. More emphasis is now placed on quality in the rank and file and whilst this has to a certain extent kept down the strength, there is no doubt that the temporary shortage has been more than compensated for by better standards generally amongst recruits.

The number of Chinese in the Force is still far below what it should be, although the percentage of Chinese compared with other races is slowly increasing. In 1958 this percentage was 4.8, increasing in 1959 to 6.9 and to 7.4 in 1960. In 1960 an appreciable increase in Chinese recruits was offset by resignations.

A new rank of Constabulary Cadet was approved by Council Negri at the end of the year, and in 1961 it is hoped to enlist a small number of men with the Cambridge School Certificate who will receive two years' training as recruits, constables and junior N.C.O.s before they are placed on a leadership course

prior to appointment to the inspectorate. It is hoped that this scheme will provide more candidates for the gazetted ranks in a few years time.

It has been decided to terminate the Commissioner's Cadet Scheme in 1961 due to a shortage of teaching staff and of men with a sufficient number of years' experience who are suitable for training in this manner. In 1960 eight of the eleven Commissioner's Cadets passed the Sarawak Local Junior Examination. This reflects creditably on the two Chinese Grade IIIA teachers who have been teaching the cadets. Unfortunately, one of these teachers has applied and been accepted for transfer to the Education Department where his future is more assured.

During the year four inspectors were appointed to act in the rank of gazetted officer. This will give them valuable experience and, provided they pass their qualifying examinations and are found in every way suitable, they will in due course be confirmed in their acting appointments.

A start was made in the formation of a Women's Police Section in August when two Women Inspectors were enlisted on probation and were sent for training to the Federal Depot of the Royal Federation of Malaya Police Force in Kuala Lumpur. Their course of training finishes in the middle of 1961 when they will be posted to Kuching for police duties. It is hoped to form a small section of Women Police later in 1961 but this is dependent on an easing of the accommodation shortage.

The Deputy Inspector-General of Colonial Police Forces—Mr. N. G. Morris, C.M.G.—inspected the Force from the 12th May to 26th May and in addition to inspecting all the main formations he visited fifteen police stations.

A police tattoo was held in Kuching on the 5th, 6th and 7th May. This is the third postwar tattoo and, to quote a local press comment, they were nights of excitement, entertainment and reminiscence. Owing to the considerable effort which has to be put into these tattoos, it is not possible to hold them every year and the next one will be held in 1962. Through the courtesy of the General Officer Commanding Far East and the Officer Commanding the 10th Princess Mary's Own Gurkha Rifles the Pipe Band, made up of pipes of the First and Second Battalions took part in the tattoo and was a special attraction.

Special guests for the dress rehearsal were blind and handicapped children and adults.

Two visits to Sarawak were made by senior police officers from Pontianak in Indonesian Borneo for discussions on police and criminal matters. Liaison with the Indonesian Police is now closer than it has been in the past, and will be even closer when the proposed police stations are established near the frontier areas of Kalimantan Barat.

The subversive activities of a relatively small but active secret communist organisation which aims ultimately at the revolutionary overthrow of the lawfully constituted Government were revealed in a Sessional Paper laid before Council Negri in July. This disclosure has convinced many people of the need for vigilance in countering subversion in Sarawak.

Following closely on the publication of the Sessional Paper was the discovery, on information given to the police, of a substantial part of the archives of this communist organisation.

Ceremonial

Five full guards of honour were mounted in 1960. A number of smaller guards of honour were mounted in various stations. Parades for the Queen's Birthday were held by police units throughout the country and there was a Remembrance Sunday parade in Kuching.

Establishment and Strength

The establishment of gazetted officers was reduced by two to thirty-five in 1960. Three posts were abolished as the result of Brunei ceasing to draw officers on secondment from the Sarawak Constabulary. A new temporary post of Superintendent was approved and one post of Superintendent was upgraded to Senior Superintendent.

One gazetted officer was seconded to the Immigration Department throughout the year and one to the Administration for seven months. One gazetted officer relinquished his appointment on completion of contract and one Assistant Superintendent resigned.

There were no changes in the establishment of the Inspectorate and the Rank and File. At the close of the year there was a deficiency of three gazetted officers, nine inspectors and fifty non-commissioned officers and constables.

Recruitment

One hundred and thirty-six recruits were enlisted in 1960. Only nine recruits had an education less than Primary VI and fifty-four had been to a secondary school, including three who had passed the Cambridge School Certificate and twelve the Sarawak Local Junior Examination.

Training and Education

One gazetted officer and one inspector attended courses of instruction in Britain, the latter at the Hendon Police Training School. Two gazetted officers, two inspectors and nineteen other ranks attended various training courses in Singapore and Malaya.

The intake of better educated recruits has produced a language problem in training. Formerly, when most of the recruits were below Primary IV in education, there was little difficulty in training them entirely in Malay, although some found it difficult at first to assimilate the training in Malay. Three years ago when recruits with secondary school education started to come in, an attempt was made to train them through the medium of English. This was not entirely successful in that quite a number of the recruits had insufficient knowledge of that language, and, as practically all the instructors are Malay speaking, it was decided in 1960 to revert entirely to Malay as a medium of instruction. This means that some recruits have to be taught Malay before they can pay serious attention to their police training. The effect has been to deter secondary schoolboys from enlisting. For this reason the number of English speaking instructors has been increased in order that in 1961 both the English and Malay languages can be used in the training syllabus.

Eleven Commissioner's Cadets sat for the Sarawak Local Junior Examination in November and eight of them passed. The Commissioner's Cadet Scheme will not be continued in 1961 for the reasons given earlier in this report. Men with a Form III education will, however, be encouraged to continue their study of English and at the same time they will be given every encouragement to reach the standard of knowledge and efficiency required for the Inspectorate.

The recruits' training syllabus has been revised; education has been virtually eliminated and greater emphasis is placed on

practical training. It is early yet to say whether this will improve standards, but the indications are that it will.

Three refresher courses for constables and one non-commissioned officers' promotion course were held during the year. Results were satisfactory, especially from the men on the promotion course who worked extremely hard.

The lack in Sarawak of any proper systematic training of young potential officers has been a problem since the war and remains unsolved. The trouble has been a shortage of high grade instructors. It is intended in 1961 to overcome this, and details are being finalised for a leadership course which will provide cadets and selected members of the rank and file with training aimed at bringing out qualities of leadership, improving powers of expression and developing personality.

The effect of insisting upon a Primary VI education for recruits to the regular police has whittled down the supply of candidates to the extent that recruiting has fallen below the number required to maintain a full establishment. This gives no cause for worry at present as the improved standards of recruits tend to offset any deficiency there may be in numbers.

The printing of the English version of Constabulary General Orders was completed in 1960 and they were taken into use. Work is now going on with the Malay version preparatory to printing.

Buildings

The following buildings were completed during 1960:—

A block of sixteen married other ranks' flats in Kuching.

A block of classrooms at the Police Training School.

A new wing to Constabulary Headquarters.

Extensions to Constabulary Headquarters garages.

Guard rooms at Constabulary Headquarters, Field Force Headquarters and Police Training School.

A wooden block of eight married quarters at Saratok.

A "country" police station at Saratok.

The following buildings were under construction at the end of the year:—

A block of sixteen married other ranks' flats in Kuching.

A "country" police station at Bintulu.

An inspector's quarters at Marudi.

A boat repair shed and slipway at the Police Training School.

A number of minor works, including a macadam road through Field Force Headquarters and parade grounds at Field Force Headquarters and Simanggang, were completed. The total estimated value of the 1960 building programme was \$695,250.

The new blocks of flats in Kuching are built to the design of the Kuching Municipal Fire Brigade flats and are a great improvement on existing wooden barracks. They have three living rooms and their own kitchens and bathrooms. For men who have to spend a great part of their spare time in their quarters on call and studying they are ideal. There remains a formidable programme of building to bring police living quarters to an efficient standard; there are many wooden barracks which are of inferior quality, expensive to maintain, depressingly dark and airless and a deterrent to recruitment.

Flooding of barrack areas during most of the year, particularly in Kuching and Sibu, causes considerable inconvenience to the men. The flooding is caused by the absence of main drainage schemes, which will be costly to construct. Nevertheless, the construction of drains in the barrack areas will make life pleasanter and healthier, and the cost will probably be more than offset by the saving in damage to buildings.

Health

The health of the Force remains generally good. There were seven cases of tuberculosis reported during the year, a slight decrease on previous years. The automatic X-ray photography of members of the Force catches the disease in its early stages. The opening of a fortnightly clinic at Field Force Headquarters, which is used by police families and people living in the neighbourhood, is a great boon. Other police formations have asked for the same facilities but there is a limit to the resources of the Medical Department. A police medical orderly is stationed at the Police Training School to deal with first aid and minor aches and pains.

Welfare

The welfare committee structure of the Force was reorganised on a pyramid system towards the end of 1960. At district and platoon level the welfare of the men is the concern of a welfare committee consisting of the unit commander and four elected members. These committees run their own canteens

in some instances, organise recreation and supervise the expenditure of the unit's welfare funds. They can forward suggestions dealing with welfare and recreation which they are unable to deal with themselves to the command welfare committee.

These committees elect one representative to sit on the command welfare committee of which the commanding officer is the Chairman. Command welfare committees deal with welfare and recreation at a command level, meeting once quarterly. They forward matters with which they cannot deal to the Central Welfare Committee.

The Central Welfare Committee is made up of the Assistant Commissioner as chairman, the Staff Officer as secretary and one representative elected from each of the command committees. The Central Welfare Committee makes recommendations to the Commissioner on the allocation of central welfare funds and on such matters arising from recommendations made by command welfare committees as it thinks fit.

It is still early to judge the effect of the new system, but there seems to be no limit to the number of propositions already put forward. The Central Committee which meets twice a year and will have its first meeting early in 1961 will give these propositions due consideration. The main limiting factor is likely to be shortage of funds.

The two co-operative societies continue to prosper, although an unduly high proportion of resignations from the Thrift and Loan Society during the latter half of the year gave some cause for thought. These resignations were occasioned by the tightening up on loans. A liberal attitude by the Committee to loan applications and a tendency to overscribe to the Society had caused some members to be in financial difficulties. This Society, nevertheless, had a more prosperous year than ever before as also did the Stores Society. The purchase of an adding machine has justified itself already in savings on the Stores Society clerical account.

Soccer, rugby football, badminton and athletics continue to be played with enthusiasm in some stations. In others, the shortage of playing fields is a curb to better performances, although standards generally improved in 1960. The annual boxing championships were held at the Police Training School

on September 30th. For the second year running the Force won the Inter-Club Athletics Challenge Shield presented by Mr. William Tan which is competed for by all clubs affiliated to the Kuching Amateur Athletic Association.

Field Force

The Field Force establishment is 271 all ranks and is made up of a Headquarters wing and four operational platoons. One platoon is seconded to Brunei and the other three are in Kuching, Sibu and Miri.

The Field Force is armed with bren guns, sten guns, Lee Enfield rifles, sterlings and carbines. They are trained in jungle warfare, riot drill, guard and escort duties and the rudiments of police work. During 1960 they carried out a total of 286 patrols which covered most parts of Sarawak.

The Field Force is made up of volunteers from the regular police, former Sarawak Rangers and men of the hinterland who are recruited direct to the Field Force and are usually illiterate on entry.

It is intended to step up the police side of training in 1961 to allow the Field Force to be used more often in aid of the regular police. Emphasis is placed on education in training programmes, and the men are encouraged to take the various police examinations.

A combined Army/Field Force exercise was held in July and covered the Second and Third Divisions. The troops taking part were from the 2nd/2nd Gurkha Rifles; the Pipe Band of the 2nd/7th Gurkha Rifles accompanied the troops who were flown in and out by Royal Air Force Beverley aircraft.

Visits were made to Field Force Headquarters and training demonstrations were watched on various occasions by His Excellency the Governor, the United Kingdom High Commissioner to Malaya, Sir Geofroy Tory, officers of the Armed and Civil Services of the Commonwealth and Allied Countries attached to the Imperial Defence College and Senator J. G. Gorton, Australian Minister for the Navy.

In October, 1960, Royal Air Force personnel from the Royal Air Force, Seletar, Singapore, carried out a jungle survival course in the First Division with members of the Field Force.

Communications

Radio communications leave room for improvement. Towards the end of the year the Posts and Telegraphs Department carried out some realignment of aerials which has improved signals between Constabulary Headquarters and the three Divisional Headquarters. There seems to be little hope of real improvement unless and until new frequencies can be found. The mobile pack sets are unsatisfactory in that they are heavy and depend on wet batteries. A more suitable type of set for field operations is being sought. The V.H.F. telephone service takes a heavy police load. The withdrawal in March, 1960, of direct police V.H.F. links between Kuching, Sibu and Miri has cut off an extremely valuable channel of communication between Constabulary Headquarters and divisional commanders.

Repair and maintenance of police radios is carried out by the Posts and Telegraphs Department and their always prompt attention to police needs is appreciated.

Fourteen of the thirty-one motor vehicles, excluding eighteen motor cycles, on the strength have been condemned and will be sold as soon as replacements have been received. A forward programme of replacements has been approved. The Public Works Department Mechanical Workshop, which undertakes all police repairs and maintenance, has been reorganised and the benefits are already apparent.

Fifty-one river craft are maintained at riverside police stations. These are built on the rivers they serve by local builders who know the type of craft required for a particular river. These craft do not stand up long to the rigours of police patrolling and at small cost need constant replacement. It has been difficult to keep both the boat and the outboard engine in service at the same time in many stations. The Public Works Department recently took over the control of police outboard engines and it is anticipated that with regular repair and maintenance facilities mobility will be improved in stations dependent on river transport.

The two police seagoing launches continue to give good service. The years of one are numbered as she is forty-eight years old. There is a need for a launch which can be kept at sea, if necessary, in all but the worst weather.

Auxiliary Constabulary

The Auxiliary Constabulary is made up of the Field Force Reserve, the Oilfield Reserve and the Uniform Branch.

The Field Force Reserve is 173 strong and comprises former members of the Sarawak Rangers and the Field Force. 173 non-commissioned officers and constables attended four annual camps held during 1960 in Kuching, Sibu and Miri. They trained alongside the Field Force operational platoons in these places. His Excellency the Governor took the salute at the Kuching reservists' camp on 25th November, 1960, when His Excellency presented a Royal Humane Society testimonial on parchment to P.C. 1616 Char bin Anal of the Field Force who rescued a person with suicidal intentions from drowning in Miri in 1959.

The Oilfields Reserve was reorganised early in the year and has a strength of fifty members, all employees of the Sarawak Shell Oilfields Company. It is trained to assist the regular police when necessary in policing the oil refinery and other oil installations in Miri. It is a compact and efficient little unit, and is well led. The Oilfields Reserve held a nine-day training camp outside Miri in November, 1960. The camp was run in conjunction with the Field Force.

The Uniform Branch which is at present eighty-one strong will be reorganised in 1961. It is intended to make the training more interesting in order to attract volunteers. Only about half the strength of the unit received the bonus for attendance of seventy-five per cent of all parades in 1960.

Band and Bugles

The Band remained at full strength at forty and the Buglers were two over strength at eighteen throughout the year.

Again, a very successful year can be recorded for the Band which performed 108 times in public and at 140 routine parades. The dance band carried out seven engagements. Five tours were made embracing Sibu, Binatang, Sarikei, Mukah, Lutong, Miri, the Marudi Regatta, Lundu Regatta, Simanggang Regatta and Serian. Sixteen bandsmen passed various grades of the practical and theoretical examinations held by the Associated Board of the Royal School of Music. A new band practice room and offices has immensely improved training facilities.

Traffic

The number of motor vehicles in Kuching increased by 1,036 to 4,578 in 1960. The development and widening of roads in the Kuching area continued and has helped to ease the traffic problem. In the business quarters of the town, however, congestion continues to increase and the provision of parking space is now extremely urgent. The Municipal Council carried out a survey and provision will be made for car parks in certain areas.

The large number of cyclists in Kuching aggravates the congestion and adds to the hazard of driving. The Safe Cycling Campaign in the schools which was started by the police in 1959 has not had the desired effect. A more positive attitude is required on the part of teachers. The widespread inability of children to appreciate the possible effects of their extraordinary, sometimes dangerous, manoeuvres on bicycles should be brought home to them and the teachers can help in this. The campaign has so far failed to drive home to cyclists the importance of good road manners. Particularly bad is the habit of riding two or three abreast in narrow streets and causing obstruction to other users of the road. Warnings have not had the desired effect and the police have been forced to prosecute offenders to reduce this nuisance. It is distressing to note the indifference of most cyclists either to the lessons of the Safe Cycling Campaign or to police warnings. However, all this speaks well for drivers of motor vehicles, in that, in spite of the constant need for sudden avoiding action to miss "clowning" cyclists, the annual number of road accidents has not risen in the last four years.

The number of prosecutions under the Road Traffic Ordinance fell from 4,281 in 1958 to 2,848 in 1959 and rose again to 4,208 in 1960. The system of warning first offenders in minor traffic infringements which was introduced in 1959 is largely accountable for the decrease in the number of prosecutions in that year. In 1960 it was found necessary to prosecute more first offenders in certain categories of traffic offences in an endeavour to reduce blatant disregard for normal road courtesy, which accounts for the increase this year.

Registration of Societies

Four hundred and thirty-five societies have been registered under the provision of the Societies Ordinance. In 1960 a total of forty-

four new societies were registered and five were awaiting registration at the end of the year. One society ceased to exist. No society was refused registration nor was any society declared unlawful.

Aliens

The total number of aliens registered decreased from 2,281 in 1959 to 2,196 in 1960; 487 new registrations were recorded and 572 aliens left the country or died.

Legislation to suspend the operation of the Aliens Ordinance became effective in December, 1960.

Crime

The incidence of crime remained generally low although there has been an upward trend in offences covered by the Penal Code as compared with 1959. There was a marked increase in the number of house-breakings. Thefts, of which theft of bicycles is the most prevalent, showed a slight increase.

Offences against the person showed a slight upward trend, although there has been a decrease in the number of murders; seven murders were reported compared with ten in 1959 and twelve in 1958. There were twenty-six shooting cases, including reports arising out of the careless use of guns whilst hunting. In 1959 the number of shooting cases was thirty-two. The careless and negligent use of firearms by hunters has drawn much publicity in the last three years, and an amendment to the law in 1958 makes it an offence to kill or injure a person by the discharge of a firearm and places the onus of proving that reasonable precautions were taken on the person discharging the firearm.

For the first time since the end of the war a secret society, organised on typical Singapore lines, was discovered in Kuching, but early police action prevented it from becoming a prey on society.

On 3rd January, 1960, a gang of nine robbers armed with knives attacked some shophouses at Pangkalan Tebang not far from the Indonesian border. The attack was defeated mainly by the gallantry of two Malays and in the struggle one robber was killed. The other robbers fled. As the result of the initiative of the Chairman of the Local Committee at Pangkalan Tebang one robber was captured by the police the next morning. The Malays were each given an immediate award of the B.E.M. and one Chinese was awarded a Certificate of Honour.

During 1960 police carried out a total of 245 raids on opium dens and fifty-five pounds of raw opium, prepared opium and opium dross were seized. 223 opium smokers were convicted in court. The majority of these persons were addicts; only one of them was under the age of thirty years and eighteen were aged between thirty and forty years. Seventy per cent of the smokers convicted were over fifty years of age. Seventy-two den operators and opium distributors were convicted in 1960.

PRISONS

Staff

The prison staff on 31st December, 1960, consisted of one Superintendent, one Assistant Superintendent, four gaolers, fifty-nine warders of all grades and three wardresses; this was one below strength. During the year under review, one gaoler retired on pension.

Prison Population

Three hundred and ninety-three male and five female prisoners were committed during the year.

Recidivism

There were thirteen known recidivists among the ninety-five prisoners still serving at the end of 1960. The total for the year was thirty-nine.

Prison for Women

The daily average of female prisoners was two. They were mainly employed in basket-making and gardening.

Open Prison—Pending Farm

This farm, 2.16 acres, more or less, is about four miles from the Central Prison. A monthly average of fifteen selected offenders were housed there. They were employed in planting vegetables. The farm produced a daily average of sixty-four katis of vegetables.

Spiritual Welfare and Education

Prisoners who are members of the Anglican and Roman Catholic Churches attended Sunday Services in the main office which is used as a Prison Chapel, and religious instruction was given by their respective ministers. Five selected prisoners were permitted to attend Easter and Christmas Services at St. Thomas's Cathedral. They wore civilian clothes and on both occasions were accompanied by a warder.

Muslim prisoners are given facilities to say their prayers in the prison.

Prisoners who are keen on education are taught to read and write romanised Malay at evening classes which are held three times a week.

Library and Organised Games

The Library, where reading matter in English, Chinese, Malay and Iban is provided, was very popular, and so were badminton, table tennis and draughts. Prisoners are permitted to make their own guitars, violins and ukeleles during their spare time on Saturdays in the prison workshop. Radio listening was permitted between 6 and 9 o'clock nightly, and Radio Sarawak was always the favourite station. The Information Service continued to give cinema shows fortnightly in Kuching Prison, and these were always well attended.

Health

Health was good. Three prisoners were admitted to hospital for treatment which could not be given in the prison hospital, where all minor cases were treated.

Labour

The following were the trade parties:—

Carpentering (furniture, house and boat-building), tinsmithing, tailoring, vegetable planting, blatt-making, laundry, basket-making and reseating of chairs.

Other parties were employed in work on government compounds.

Visits

The visiting Justices paid monthly visits to the prisons, and reported favourably on the compounds and prison buildings, and on the treatment of prisoners. The Chairman of the Prisoners' Aid Society, Mr. F. James, M.B.E., and a member of the Salvation Army visited Kuching Prison every month, and interviewed prisoners before their release. Where necessary, money, clothing and food were given to them and their dependants.

Executions

There was one execution.

Remission

Remission of one-fourth of a sentence is granted to male and female prisoners serving a sentence exceeding one month.

Revenue

The market value of articles made by prison industries, garden produce and workshop was \$59,775.94, compared with \$49,521.99 for 1959.

SARAWAK BOYS' HOME

The Home, at Sungai Priok on the Pending Road near Kuching Town, was established in 1948. At the end of 1960 there were thirty-six boys at the Home. Their ages ranged from thirteen to eighteen. Discipline was good and there were no serious breaches.

Staff

For the first time since its establishment the Home employed a Matron. She was engaged on 1st April, 1960.

Religious Instruction

A Muslim religious class was conducted four nights a week by the teacher of the Boys' Home. The Malay boys attended services at the Mosque every Friday and participated in the celebration of the Prophet Mohammed's Birthday. Christian boys of the Church of England and Roman Catholic Churches attended Sunday Services and other Church festivals at their own Church.

Health

The health of the boys was good. The Home was regularly visited by a Medical Officer.

Home Activities

The boys played football, basketball, badminton and rounders. Table tennis and other indoor games were also provided. During the year camping and visits to places of interest were regularly organised for the boys by the Home staff.

The Information Service cinema unit gave monthly cinema shows at the Home, and the boys were also permitted to attend local cinemas without charge. The generosity of the management of the Cathay Cinema and of Mr. William Tan, C.B.E., owner of the Odeon Cinema, was very much appreciated.

The Annual Christmas Party was held at the Home on the 17th of December, 1960. His Excellency the Governor and Lady Waddell were present. A concert and an exhibition of plants, arts and crafts produced by the boys were also held. Lady Waddell kindly gave away the Christmas gifts to the children of the Salvation Army Girls' Home and to the children of the staff of the Home.

Occupation

The boys were taught basket-making, carpentry, fruit-growing, fish-breeding, vegetable planting and poultry farming, and in their leisure hours, model-making. The Home was self-sufficient in vegetables and eggs and the surplus was sold for the benefit of the Amenities Fund.

Good Conduct System

This provided good conduct money at the rate of \$1.00 a week for any boy whose work and conduct was good.

Advisory Board and Parole

This Board, established in 1950, with the Director of Education as Chairman and six members appointed by His Excellency the Governor, held monthly meetings to review the progress made by those boys who had completed their first year of detention, and to make recommendations to the Chief Secretary for release on parole. The Probation Officer also attended the meetings and reported on home circumstances and other relevant matters.

Amenities Fund

This Fund obtains its revenue from donations, sale of surplus eggs, vegetables, fruits, plants and handicrafts produced at the Home. Interest from the Post Office Savings Bank was also credited to this fund. Revenue for the year amounted to \$2,193.29.

The fund is held under the control of the Superintendent of Prisons. Some of the money is used for entertainments at Christmas and New Year celebrations.

XII

PUBLIC UTILITIES AND PUBLIC WORKS

WATER SUPPLIES

Kuching Water Board

THE Kuching water supply has been successfully run and controlled by the Kuching Water Board under the chairmanship of the Director of Public Works. The town is supplied from two sources—Matang catchment and Batu Kitang river intake pumping station.

Materials have started to arrive to renew the 21-inch water main from the Datu Muda Reservoirs to the town. Investigation work to find the most suitable and economical method of treating the Matang water supply has continued.

The average daily quantity of water supplied to the estimated population of 60,000 persons connected to the system is 2,083,000 gallons per day. Of this figure eighty-one per cent has been billed to consumers.

The number of metered connections has increased to 4,979.

No increase has been made in reservoir capacity which remains at 3,703,000 gallons.

Charges for water are:—

Domestic	—	\$1.25 per 1,000 gallons
Domestic/Commercial	—	\$1.50 per 1,000 gallons
Commercial	—	\$2.00 per 1,000 gallons

The purity of the supply has been under the supervision of the Chemist/Bacteriologist who has analysed 3,080 chemical and bacteriological samples.

Sibu Water Board

The Sibu water supply has been controlled and managed by the Sibu Water Board.

Good progress has been made on the capital works' programme, and a start has been made on the renewal of the treatment plant at Bukit Lima river intake works.

The average daily quantity of water supplied to Sibu has been 753,000 gallons per day. Of this figure eighty-six per cent has been billed to consumers.

The number of connections to the system has increased to 2,533.

The charges for water are the same as in Kuching.

The purity of the supply has been under the supervision of the Chemist/Bacteriologist who has analysed 70 chemical and bacteriological samples.

Lundu

The Lundu water supply has continued to function smoothly and now has 100 consumers who together require an average of 28,000 gallons of water per day.

Santubong

The water supply to this *kampong* has functioned satisfactorily and has met the needs of the *kampong* dwellers and occupants of the leave bungalows.

Simanggang

The year 1960 has been one during which construction of the purification works has been the main item. This was necessary to remove the very high iron content (about 25 to 30 p.p.m. of iron) in the water. The works were commissioned on October 26th, 1960, and connections are being given to consumers as they apply.

Sarikei

The four tubewells and the new distribution system have continued to supply a limited amount of water during 1960. During 1960 a complete water purification plant has been built in order to remove the high iron content from the water. The purification works commenced operation on November 30th, 1960.

Consumers are being connected to the supply.

Binatang

The situation in regard to water supply is much the same as at Sarikei. A start has been made on the purification works and a limited quantity of water is supplied to the town through standpipes. Individual consumers will be connected as soon as the purification works are completed.

Mukah

During 1960 a considerable improvement has been made in the clarity of the treated water supplied to Mukah, and as a result the consumption of water has risen steadily. The 2,700 population of Mukah consume 63,000 gallons per day.

Proposals are under consideration for the development and improvements necessary for this supply to bring it up to a high standard.

Miri

Miri is supplied with a fully-purified Class I quality water taken in bulk from Sarawak Shell Oilfields. The continuity of the supply has been satisfactory, but the introduction of a fully-metered supply at an approved schedule of rates has resulted in a sharp reduction in demand from 420,000 gallons per day to 250,000 gallons per day.

Water charges are the same as for Kuching.

Bintulu

This is a small gravity water supply from a small dam four miles from the town. Water is piped into the town by a 6-inch pipeline. There is an elevated tank near the town centre of 25,000 gallons capacity. The population of 3,300 is supplied with 110,000 gallons of water per day. There are 307 connections including 36 standpipes. The system operated well during 1959, though the pressure was rather low, and the water was untreated. However, the watershed is very small and shortages may occur during long dry spells.

During 1960 proposals have been put to Government to improve and meter this supply.

Well No. 1 at Miri in 1910. (*Shell*)

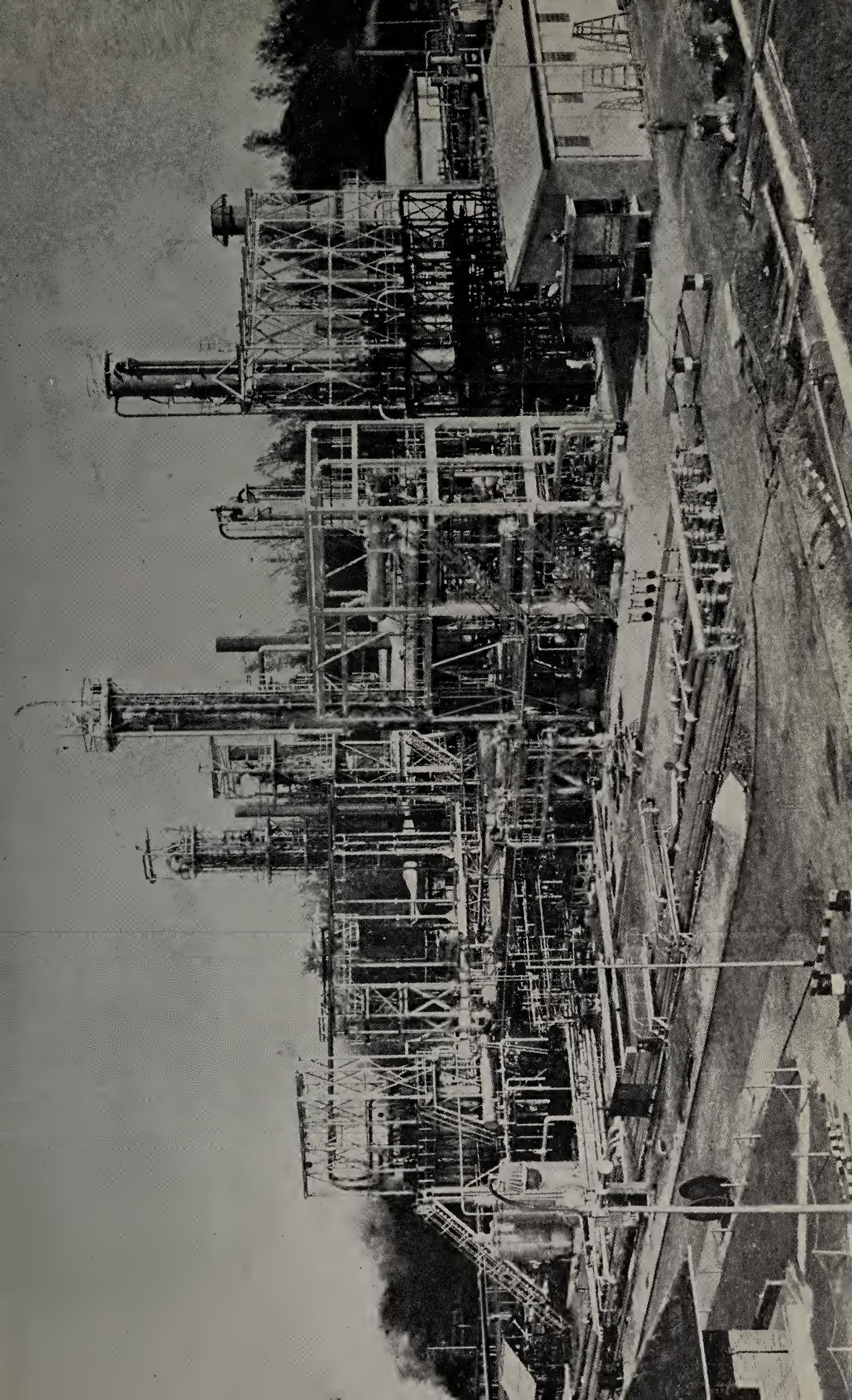
Overleaf:

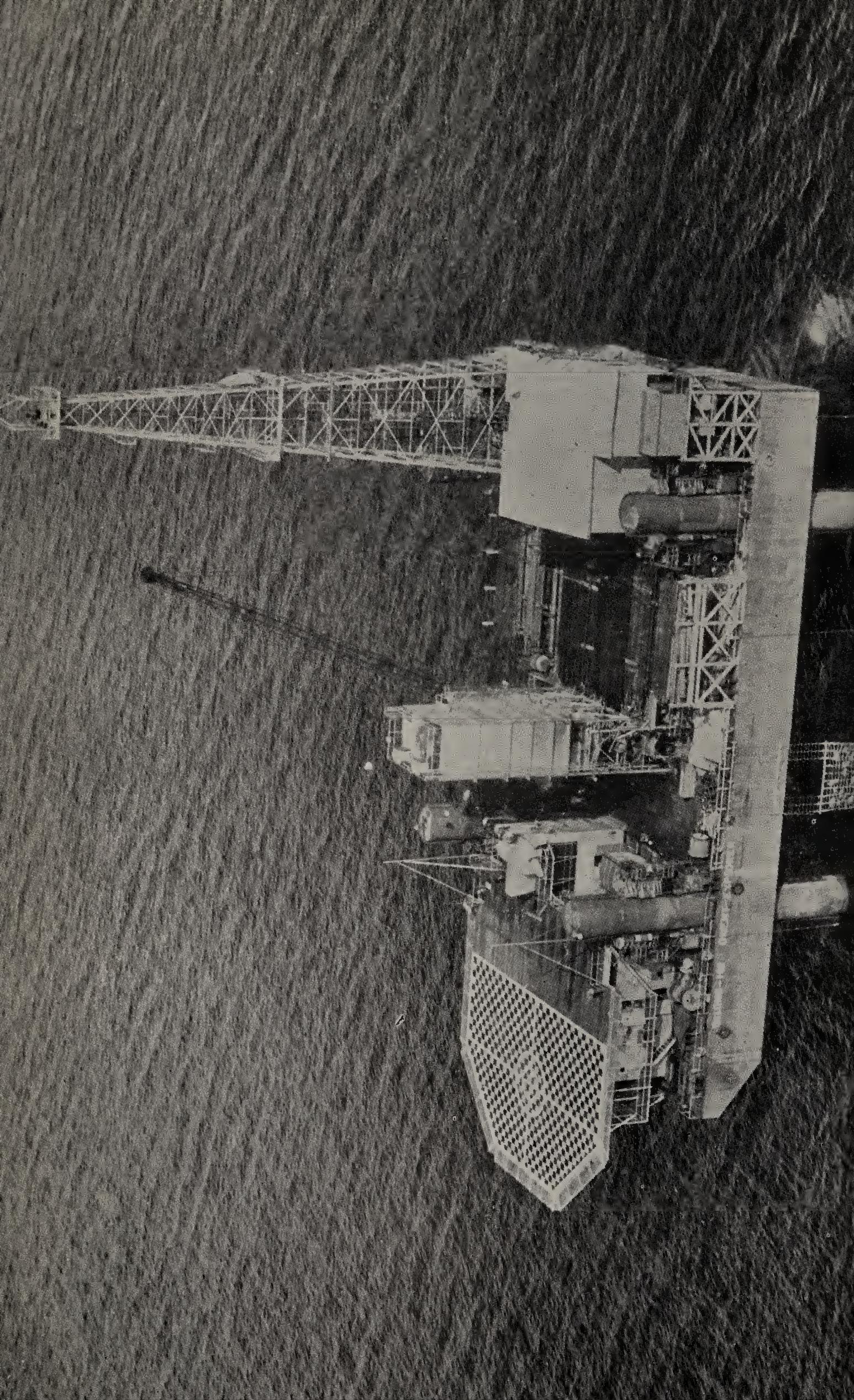
General view over Miri today. (*Shell*)

Lutong refinery in 1960. (*Shell*)









Lawas

Lawas has a mass concrete dam, a straining chamber of concrete and two miles of 5-inch pipe into the town. Supply has been by public standpipe during the past year.

The average monthly demand of water is 494,000 per month or an average of 16,400 gallons per day.

Limbang

This is an old supply and feeds water to about 3,000 persons direct from two impounding dams at Wassia Hitam and Sungai Poyan which have a combined capacity of about 310,000 gallons. It is not possible to quote the total consumption as there are no meters on the system. During 1958 apparatus was ordered, delivered and installed to measure the performance of the system in order that recommendations may be made for the improvement of the supply. There are 119 consumers on the books. During 1959 and 1960 investigations and recommendations have been made to improve this supply, and are now being considered by Government.

General

Planning and construction are well advanced for the new water supplies at Marudi, Serian, Kapit and Kanowit.

GAS

Miri

Applications for the supply of gas were received during the year. The total number of services at the end of the year amounted to 700.

ELECTRICITY

The Sarawak Electricity Supply Company Limited, a Government-owned limited liability public utility undertaking, provides public electricity supplies at Kuching, Bau, Serian, Betong, Simanggang, Sibu, Sarikei, Binatang, Kanowit, Kapit, Mukah, Miri, Bintulu, Marudi and Limbang. At the end of 1960 Issued Share Capital totalled \$10,500,000 all of which has been taken up by the Sarawak Government.

The "Orient Explorer" mobile drilling platform which should be at work off Sarawak in 1961. (*Shell*)

Electricity supplied to the consumers is 400 volt, 3 phase, 4 wire, 50 cycle, or 230 volt, 2 wire, 50 cycle with the exception of one station, Mukah, where a D.C. 460/230 volt 3 wire supply is provided. Plans are in hand to convert this remaining direct current station to alternating current.

Continuous electricity supplies are provided at Kuching, Simanggang, Sibu, Sarikei, Binatang, Kapit, Miri and Limbang and in the other stations hours of supply are 5.00 p.m. to 6.30 a.m. with the exception of Mukah which operates from 3 p.m. to 9 a.m.

All stations are powered by Diesel engines ranging from thirty to 2,000 horse-power operating on various fuels ranging from Class A to Class C, B.S. 2869: 1957. Voltages of generation are either 400 or 11,000, the latter being applicable in Kuching.

The commissioning of a new power station in Kuching in 1959 enabled plant to be released for both Sibu and Miri. As a result of this two further generating sets were installed at Sibu and a further two generating sets were installed at Miri. This in turn released smaller plant for re-installation at Sarikei and Simanggang and in both those stations the plant released is in the process of being installed. The programme of plant transfer allowed the redundant power station building in Kuching to be used as a stores depot pending the erection of a divisional headquarters.

During 1960 generating capacity over the entire system was increased by some twenty-four per cent to a total of 9,814kW to meet the rising demand and provide safe generating capacities in the majority of the power stations, the largest increases being reflected in the generating capacities of Kuching and Sibu.

Transmission systems operate at 11,000 and 6,600 volts mixed overhead and underground depending on the locality. In the case of the overhead lines, low tension conductors are as a general rule mounted on the same standards.

During 1960 a further nine substations were commissioned in Kuching to meet the growing demand for electricity and to improve voltage regulation. In Sibu, the high tension system was strengthened whilst in Binatang, Miri and Limbang high tension extensions were carried out.

The low tension reticulation systems are mainly overhead on wood poles with, in the cases of Kuching and Sibu, an underground system in the centre of the town. A large-scale reconstruction programme of low tension mains in the major stations was undertaken during 1960 with a view to ensuring that all distribution will as soon as possible be up to standards recently laid down by Sarawak legislation. By the end of 1960 the underground cable schemes in both Kuching and Sibu were complete to a large extent; both towns have benefitted considerably not only from less constricted highways but also in general appearance.

A further 1,341 consumers were connected to the public electricity supply mains, an increase of twelve per cent, illustrating the expansion of the system, the growth of population and possibly a movement from the rural to the more urban areas.

Further details of public electricity supplies are available in the Annual Reports issued by the Sarawak Electricity Supply Company Limited.

Public Electricity Supplies not under the control of the Sarawak Electricity Supply Company Limited

The licensing of minor public electricity supply schemes, not under the control of the Sarawak Electricity Supply Company Limited, is carried out by the Chief Electrical Inspector under the provisions of the Electricity Ordinance.

These schemes are associated with small townships or bazaars in isolated parts of the country, and are financed mainly by individuals or small partnerships. In general these schemes provide no more than the amenity of electric light and their supply periods are normally six hours per day.

A total of 27 such schemes have been licensed over the period 1956 to the end of 1960 with a total installed capacity of 392 kilowatts.

Electricity supply conditions in these schemes are standardised on 50 cycle alternating current at 230 volts single phase and 400 volts 3 phase.

BROOKE DOCKYARD AND ENGINEERING WORKS

During the year the Dockyard has continued to make good progress and the output has increased with a corresponding reduction in costs.

Particular attention has been paid to the improvement of standards of workmanship and this aspect will continue to receive the closest attention.

A considerable amount of the physical reorganisation has been completed with the minimum of interference with the work in progress and a considerable improvement in working conditions has resulted.

During the forthcoming year it is proposed to replace certain of the older machine tools and this will result in a further improvement in output and standards.

PUBLIC WORKS

Buildings and Civil Engineering Works

An extensive programme of building works was carried out during the year. All professional and technical staff directly concerned worked to maximum output.

In conjunction with the programme for new works a very extensive maintenance programme was executed along with a planned scheme for bringing arrears of maintenance to a satisfactory level. The greatly increased and concentrated effort applied to building maintenance over the past year is immediately reflected in the better condition of government buildings generally.

Assistance to local authorities continued to be given when requested whenever circumstances permitted. This usually took the form of both professional advice and services.

Buildings completed during the year included Phase I of the new Teachers Training Centre, Kuching, consisting of Lecture Rooms, Assembly Hall and Primary School; two blocks of Police Flats (32 in all) in Kuching; two blocks of Classrooms and a Band Practice Building at the Police Training School, Kuching; and Transit Sheds at the new Kuching Port.

Some of the building projects on which construction continued during the year are as follows:—

New Government Offices in Badrudin Road, Kuching.

Teachers Training College, Kuching.

(Phases II and III consisting of Staff Quarters, Administration Offices, Specialist Lecture Blocks and Library)

Port Development—Kuching.

(Port Offices and Canteen, Commercial Offices and Stores and Other Ancillary Buildings)

Sarikei Hospital (Third Division).

Four District Dispensaries.

Simanggang Secondary School (Second Division).

Kanowit Secondary School (Third Division).

Public Works Department Depots and Offices:—

Limbang, Fifth Division.

Sarikei, Third Division.

Simanggang, Second Division.

Twenty-nine Class II Quarters, Kuching.

Wharves and Port Development

The construction of the reinforced concrete wharf and the transit godowns in the new port area in Kuching has been completed and road works are progressing well. It is expected that the new port will be in operation in April, 1961. Site investigation and planning of a three-storey godown and temporary godowns were carried out during the year.

The work of extending the Biawak Oil Jetty was started during the year and dredging work at the site to allow berthing of bigger tankers will be commenced shortly.

The piling works for the construction of Simanggang wharf and Miri coastal wharf have been completed and other works on the construction of these two wharves are in progress.

The investigation and design works of five pontoons to form a reinforced concrete floating wharf at Sibu and one in Betong have been completed; construction will be commenced in early 1961.

Town Development

Construction of a reinforced concrete retaining wall in Sibu for reclaiming lands for godowns was commenced during the year and other town development works including earth filling, drainage and road surfacing in Sibu progressed well.

Town development works in Miri during the year were the construction of roads with cement soil stabilized sub-base and wet sand mix base with bituminous wearing course.

Works on town development in minor towns including Maong and Batu Lintang bazaars in Kuching and at Simunjan, Marudi, Lawas and Limbang progressed steadily.

Airfields

Kuching—Earth works on stopways beyond the end of the extended runway were completed and the construction of subsoil drains was started during the year. Investigation and design of the further work required including further extension and strengthening of the runway, construction of larger parking apron and taxiways, etc., were in hand. Construction work will be commenced in 1961.

Sibu—Surfacing of the runway and parking apron progressed well. Part of the surfaced runway extension will be opened for use on the 1st of January, 1961.

Bario—The construction of the Bario Airfield is completed.

Improvement of Feeder Airfields—Extensive survey and investigation works have been done during the year with a view to improving the standard of the airfields at Lawas, Marudi and Mukah.

Drainage and Irrigation Section

In the relatively new field of drainage and irrigation within the Department there has been a satisfactory growth of activities. Construction work on the drainage and irrigation scheme at the Samarahan Estate is nearing completion, whilst the survey of a swamp forest area at Serian is finished. At present a 5,000 acre site for an oil palm development scheme near Danau in the Fifth Division is being surveyed as a preliminary to designing and installing the drainage works required to open up this undeveloped swamp region. Other surveys in hand concern a 4,000 acre area

at Bijat in the Second Division, and 7,000 acres in the Lower Sadong region of the First Division. Work has commenced on a general programme of hydrological survey and analysis, and use is being made of hydraulic models as an aid in designing water control structures and river works.

Chemical/Bacteriological Laboratory

With the arrival of scientific apparatus and the appointment of supporting staff, the scope and volume of the work carried out increased considerably. Full chemical and bacteriological control of all water supplies throughout Sarawak was implemented and, from mid-year, quite a number of samples were analysed in connection with proceedings under the Excise, Poisons, and Dangerous Drugs Ordinances.

The total number of samples analysed amounted to 4,663 and the sources of origin are shown in the following summary:—

Kuching Water Board	3,069
Sibu Water Board	46
Other Water Supplies	600
Public Works Department	63
Trade and Customs	749
Sarawak Constabulary	100
Medical Department	23
Other Government Departments	6
Sarawak Electricity Supply Co.	2
Commercial Firms	5

XIII

COMMUNICATIONS

AIR

General

THE first commercial Interior Air Service was inaugurated during the year to Long Akah in the hinterland of the Baram District.

A new airfield at Bario in a very remote area of the Fourth Division was built, and after the runway has consolidated, it is hoped to link this otherwise inaccessible area to trading centres at the coast by a commercial air service.

Passenger traffic, particularly on main line services, continues to increase at a considerable rate. 1960 traffic figures to Kuching Airport increased 120 per cent over 1955 traffic. 1960 passengers increased 17 per cent over 1959 figures. It is considered that increased traffic is due to general prosperity, faster aircraft on scheduled services and normal growth due to the increase in Government and commercial staff. The planning of extension facilities to meet this increase in air traffic at Kuching Airport is in progress.

Public Air Transport

SINGAPORE/BORNEO REGIONAL SERVICE

MALAYAN AIRWAYS LIMITED

VICKERS VISCOUNT AND DOUGLAS DC₃ AIRCRAFT

<i>Route</i>	<i>Frequency</i>
Singapore/Kuching/Brunei/Jesselton	Viscount. Four times weekly in each direction.
Kuching/Sibu	DC ₃ . Five times weekly in each direction.
Singapore/Kuching/Sibu Brunei/Jesselton/Sandakan	DC ₃ . Three times weekly in each direction.
Kuching/Sibu/Brunei/Jesselton/Sandakan	DC ₃ . Once weekly in each direction.

BORNEO INTERNAL SERVICE
BORNEO AIRWAYS LIMITED

DE HAVILLAND RAPIDE AND SCOTTISH TWIN PIONEER

Route

Frequency

Labuan/Brunei/Lutong/	Once weekly.
Bintulu/Sibu/Bintulu/Lutong	
Marudi/Long Akah/Marudi	Twice monthly.
Lutong/Marudi/Lutong	Twice weekly.
Lutong/Bintulu/Sibu/	Once weekly.
Bintulu/Lutong/Brunei/Labuan	
Labuan/Brunei/Lutong/Bintulu/	Twice weekly in each direc-
Sibu/Simanggang/Kuching	tion.
Sibu/Mukah/Sibu	Twice weekly.

Private Aviation

The Brunei Shell Petroleum Company, Limited, has the largest private aviation organisation in Borneo. The Company operates a fleet of three Percival Prince aircraft for general communications and company schedules and these aircraft are also used by the Sarawak Shell Oilfields Limited, which has a private airfield at Lutong. In addition, two helicopters are chartered from World Wide Helicopters Limited, for communications with exploration sites inland and offshore, drilling sites and survey work.

The Borneo Evangelical Mission operates a Piper Tri-Pacer and an Auster Auto-Car. The Mission relies on its aircraft for communication with the various Mission stations in the interior of Sarawak and North Borneo. The Mission's three pilots, of whom two are also qualified aircraft engineers, are all missionaries. Headquarters are at Lawas.

Military Aviation

The Royal Air Force and the Commonwealth Air Forces continued to make frequent use of Kuching, mainly as a re-fuelling stage.

Beverley Aircraft of the Far East Air Force provided invaluable assistance by making two air-drops of aerodrome construction materials to Bario.

WATER

The overall pattern of water communications both external and internal has remained the same throughout 1960 as in 1959.

Exports of timber, oil and bauxite are regularly made by ocean carriers to many parts of the world.

Smaller vessels from Singapore, Hong Kong and Australia call regularly at Kuching, the Rejang River ports and Miri, with general cargo, and load outwards with the country's agricultural and other produce.

The services of local coastal and river vessels still provide the main system of communications throughout the country.

Although Sarawak is fortunate in having numerous rivers extending into the interior and providing a cheap means of communication, the country is singularly unfortunate, partly because of shallow bars, in lacking sites for deep water ports.

Neither of the main towns of Kuching or Sibu is directly accessible by other than small to medium sized ocean ships and Miri can only be reached by small shallow draft local coasters. Because of this the pattern of shipping that has developed is an expensive one of transhipment and extra handling of cargo which is an additional burden to the country's economy.

The ocean vessels which call to export bauxite and timber bring no import cargo, and the majority of goods imported from, or exported to, the United Kingdom and the Continent are transhipped at Singapore. A recent trend over the past two to three years has been for somewhat more direct shipment but this has been limited to the South-East Asian areas because of the limits in ship size mentioned above. Development at Kuching new port will mean a further slight increase in size of vessel but not up to acceptance of the normal United Kingdom or Continental traders.

The local coasters that act as feeders to the vessels calling at Kuching, Sibu and Miri, are generally of a local design which does not lend itself to economical running or fast cargo handling. Casualties, mainly through grounding on or near bars, are frequent. Fortunately due to climatic conditions loss of life is rare.

For the past three years, a hydrographic survey unit has been at work charting various parts of the coast and rivers, and although much remains to be done, it is now possible to see which waterways, both coastal and riverine, could be used to the best advantage.

The rehabilitation of pre-war lighthouses with modern equipment and the addition of new lights, buoys and beacons has been completed in recent years and adequate maintenance facilities provided.

The supply of qualified pilots has been increased.

A new Merchant Shipping Ordinance for Sarawak is to be introduced in 1961 and will help to raise the standards of local shipping and seamen.

The newly appointed Ports Manager, Sarawak, arrived early in the year and after a reassessment of operational requirements for the new port of Kuching at Tanah Puteh, modifications to this scheme were incorporated, and development work was further advanced. Planning of operation and administration of this new port was put in hand, necessary cargo handling equipment ordered and a nucleus of staff engaged.

A Consultative Committee was appointed by His Excellency the Governor, comprising representatives of all mercantile and consumer interests under the chairmanship of the Ports Manager, to consider and make recommendations to the Government on all aspects of the administration and functioning of the new port of Kuching.

Legislation to provide for the establishment of port authorities to operate certain ports in Sarawak was drafted during the year and will shortly be submitted to Council Negri for consideration.

A brief survey of Rejang ports was made during the year, where the cargo tonnage handled continues to increase. The Government is waiting for a report on inland water transport consequent on the visit of an expert in this sphere, before deciding on any major port development in the Third Division.

DEEP SEA TONNAGE 1960

	Inwards	Outwards
Kuching*	489,563	416,815†
Rejang River	1,233,949	1,247,160
Miri	2,703,981	2,637,549
Limbang	32,590	33,692
<hr/> Total :—	<hr/> 4,460,083	<hr/> 4,335,216

COASTWISE TONNAGE 1960

	Inwards	Outwards
Kuching	104,218	183,546†
Lundu	8,019	7,968
Simunjan	16,153	18,140
Sematan	7,589	7,431
Simanggang	13,768	13,042
Betong	5,554	5,603
Sebuyau	5,868	7,011
Lingga	16,593	16,137
Pusa	15,322	16,235
Debak	2,366	2,239
Saratok	6,807	6,809
Sibu	72,503	71,551
Binatang	25,174	26,779
Sarikei	22,136	22,663
Tanjong Mani	54,515	48,503
Balingian	3,163	3,163
Mukah	20,684	20,830
Matu	1,610	1,672
Oya	889	898
Miri	18,530	18,886
Bintulu	39,274	33,367
Baram	3,313	3,122
Niah	5,317	5,209
Sibuti	2,781	3,434
Tatau	6,954	7,001
Limbang	4,604	4,173
Lawas	4,625	2,233
Sundar	1,764	1,876
Total :—	490,093	559,512

* Includes Sejingkat, Batang Lumar and Sematan.

† Apparent discrepancy caused by foreign arrivals clearing coastwise.

ROADS

General

The main feature in 1960 on road works was the commencement of survey and construction of feeder roads. The construction works on trunk and secondary roads progressed steadily.

Trunk Roads

The construction works on the Serian/Simanggang Road progressed well from both ends. Road works to formation level

including culverts reached the 47th Mile from Serian and approximately nine miles from Simanggang. Steel superstructures for the first twenty miles including the steel truss bridge of 118 feet span for the Sungai Sadong Bridge were ordered through the Crown Agents and are expected to arrive in 1961. Investigation and design works for construction of abutments and piers for the first twenty miles had been completed and site investigation works for bridges from Mile 20 to Mile 40 progressed well.

Bituminous surfacing of the road was commenced in September, 1960, and reached the 7th Mile from Serian by the end of the year.

Secondary Roads

(a) Repok Road, Sarikei

The surfacing work progressed to the 6th Mile beyond the road junction of the Sarikei/Binatang Road.

(b) Lawas/Trusan Road

The surfacing work and construction of permanent culverts progressed steadily and the work will be completed early in 1961.

(c) Pandaruan Road

Eight miles of the road out of a total length of ten miles had been reconstructed to formation level.

Feeder Roads

(a) General

The Feeder Road Scheme consists of the construction of 434 miles of feeder roads in Sarawak. The construction works are to be carried out in three phases. Phase I, for which provision is made in the current development plan, is as follows:—

Phase I

- (i) Sibu/Ulu Oya
- (ii) Lundu/Serayan
- (iii) Nanga Pakan
- (iv) Miri/Bakong Valley
- (v) Saratok/Roban/Jakar
- (vi) Simanggang/Engkilili
- (vii) Limbang/Kubong

Phases II and III, on which survey is either taking place or to start shortly are provisionally as follows:—

Phase II

- (i) Serayan/Sematan
- (ii) Bau/Lundu
- (iii) Lawas/Lawas Damit
- (iv) Bintulu/Tatau
- (v) Ukong Danau
- (vi) Kapit/Sut

Phase III

- (i) Engkilili/Lubok Antu
- (ii) Kelupu/Julau
- (iii) Kapit/Ulu Anap
- (iv) Bakong Valley/Beluru
- (v) Improvement to Lidong
- (vi) Improvement to Matang

(b) *Construction of Feeder Roads*

The construction of the Sibu/Ulu Oya and Lundu/Serayan Roads was started during the year. Construction works to formation level of the Sibu/Ulu Oya Road had passed the Sungai Seduan and reached Mile 5½. Surfacing of the road was carried out to the third mile. Earthwork on the Lundu/Serayan Road had been completed to the fifth mile and a quarry was opened and in operation.

Construction work on the other roads in Phase I will be commenced in 1961. Plant and equipment for the road works has arrived in Sarawak.

(c) *Feeder Roads Surveys*

The surveys of the Sibu/Oya, Pakan, Lundu/Serayan and Kubong Roads were completed and the surveys of the Miri/Bakong, Saratok/Roban/Jakar, Simanggang/Engkilili, Serayan/Sematan and Lawas/Lawas Damit Roads were in progress.

Road Reconstruction

Road reconstruction works progressed well in Sibu, Miri, Sarikei and Mukah. The reconstruction of the Teku Road in Sibu which is about 4.2 miles in length was completed during

the year and the laying of the wearing course on the township roads in Sibu was about half finished.

The mileage of public roads in Sarawak maintained by the Public Works Department and local authorities is:—

DESCRIPTION OF ROADS	W I D T H		Total
	Road over 8'	8' and under	
Bitumen and Concrete	152	1	153
Gravel or Stone	176	43	219
Earth	275	58	333
	<u>603</u>	<u>102</u>	<u>705</u>

LAND TRANSPORT

A full-time Controller of Land Transport was appointed and assumed duty in March.

In order to implement the various recommendations made by the Commission of Inquiry appointed in 1958, the Organisation and Methods Adviser and the Controller of Land Transport (after this officer had made a study of conditions in Sarawak), it was decided that a new Road Traffic Bill to replace the present Ordinance should be drafted together with all the necessary subsidiary legislation.

This Bill was approved by Council Negri at its December Meeting and came into operation on the 1st January, 1961, together with the various sets of Regulations. The Road Traffic Ordinance, 1960, and the Regulations make important changes in the system of control of commercial transport and are designed to provide Sarawak with up-to-date legislation in respect of all matters connected with motor vehicles and land transport.

Steps were taken concurrently with the drafting of the Bill to bring the whole of the country within the provisions of the Ordinance to be repealed, to streamline the licensing system applicable to commercial transport by establishing Divisional Licensing Authorities in each Division under the chairmanship of the Residents and making these Authorities responsible for providing and maintaining a sound economic road transport structure in the area under their jurisdiction. The Divisional Licensing Authorities were constituted so as to enable them to dove-tail into the provisions of the new Ordinance without further change. The new system which was introduced in September is working smoothly and satisfactory results have been achieved.

The Motor Transport Licensing Authority which is to be replaced by a Land Transport Advisory Board and an Appeal Tribunal under the new Ordinance met seven times during 1960 and gave valuable assistance to Government in matters of policy.

Radical changes were made in May to the system of operation of taxicabs by the authorisation of these vehicles to carry passengers at separate fares whereas previously they had to be hired as a whole. Conditions were imposed to prevent direct competition between taxicabs and bus services. The changes were made after discussion with the providers of the services, and the reorganisation of the public passenger transport system proved of benefit to both the travelling public and the operators.

The number of motor vehicles in Sarawak continues to increase and 6,861 vehicles of all classes were licensed at the end of 1960. 12,413 driving licences and 5,588 provisional driving licences were issued and 3,258 driving tests conducted. 64 per cent of the applicants tested passed the test, 36 per cent failed.

A new office building with covered vehicle inspection facilities is to be built for the Land Transport Department early in 1961, and a scheme of overseas in-service training is in progress whereby the vehicle examiners of the Department are sent to Malaya for a two months' course of intensive training. Both these projects should generally assist in ensuring the road-worthiness of vehicles and add to road safety.

TELECOMMUNICATIONS

PUBLIC TELEPHONE SERVICE

Expansion and development of the public telephone system continued throughout the year.

The underground cable systems in all the main towns were surveyed and where necessary extensions were planned to cover foreseeable development.

During the year the Sibu Automatic Exchange was extended from 600 to 1,200 lines.

The International Radio Telephone Service from Kuching to Singapore and Malaya was inaugurated on 3rd November, 1960, and opened for public service on the following day. The service has since been extended to the United Kingdom.

At the end of the year four automatic and forty-five manually operated exchanges with 3,359 telephones connected were in service in the territory, of these telephones 2,277 were private and 1,082 Government.

TELEPHONE STATISTICS

(Values are in decimals of a million dollars)

Year	TELEPHONES			TRUNKS		Total Value
	Number	Cash Revenue	Service Value	Cash Revenue	Service Value	
1952	720	0.022	0.045	—	—	0.045
1953	720	0.024	0.056	—	—	0.056
1954	720	0.027	0.057	—	—	0.057
1955	1,257	0.072	0.115	—	—	0.115
1956	1,931	0.110	0.186	0.041	0.094	0.280
1957	2,135	0.271	0.459	0.120	0.244	0.703
1958	2,682	0.375	0.590	0.170	0.283	0.873
1959	2,981	0.400	0.643	0.250	0.346	0.989
1960	3,359	0.480	0.693	0.365	0.490	1.183

NOTE: (a) Cash Revenue is collected from private subscribers for telephone rental and trunk call charges.

(b) Total Value includes value of telephone and trunk calls provided for Government Departments.

V.H.F. Radio Network

At the end of 1960 there were fifty-one outstations with V.H.F. radio telephones linking them to Zone Centres at Kuching, Simanggang, Sibu and Miri. The system continued to provide a satisfactory service.

V.H.F. Radio Multi-Channel Trunk System

The basic scheme as planned was completed and an engineering assessment was begun with a view to determining the improvements necessary to provide circuits acceptable for connexion to the world telephone system.

Public Telegraph Service

A new H.F. transmitting station at Stapok, near Kuching, was commissioned during the year, incorporating a new high power transmitter for use on the Kuching/Singapore circuit by teleprinters. Direct telegraph circuits were operated between Kuching/Jesselton, Kuching/Brunei, Miri/Labuan, Miri/Seria and Limbang/Labuan.

Inland telegraph services were available between fifty-six places by wireless telegraphy and/or radio telephony and the following circuits were operated by teleprinters over the V.H.F. radio telephone network:—

Kuching/Sibu, Kuching/Miri.
Sibu/Sarikei, Sibu/Mukah.
Miri/Marudi and Miri/Limbang.

A new medium wave transmitter was installed at Kuching for use in the ship-to-shore service.

The ship-to-shore radio telephone service for Kuching was nearing completion at the end of the year.

TELEGRAPH STATISTICS

(Values are in decimals of a million dollars)

Year	EXTERNAL (WORDS)		INTERNAL (WORDS)		Cash Revenue	Service Value
	Sent	Received	Govt. Sent	Private Sent		
1952	0.82	0.94	1.77	1.46	0.23	0.41
1953	0.93	1.06	2.03	2.05	0.25	0.44
1954	0.88	0.89	1.81	1.99	0.25	0.42
1955	0.96	0.95	2.11	1.38	0.28	0.47
1956	0.86	0.95	2.42	1.42	0.26	0.46
1957	0.93	0.86	2.19	1.16	0.21	0.37
1958	0.84	0.46	1.68	1.09	0.20	0.41
1959	0.96	1.02	1.54	1.92	0.24	0.34
1960	1.04	1.07	1.60	0.82	0.23	0.39

NOTE: (a) Cash Revenue is in respect of private telegrams handed in for transmission at telegraph offices.

(b) Service Value is the revenue which would have been collected if telegrams on Government service had been paid for.

Aeradio

On 1st March the Department became responsible for the operation and maintenance of aeradio at Kuching and Sibu Airports, a service formerly provided by Messrs. International Aeradio Limited. The Department also operated aeradio at Simanggang, Mukah, Bintulu, Lutong, Marudi and Lawas airfields.

Police and Marine Radio Networks

The Department continued to maintain the radio equipment operated by the Police and Marine Departments.

Postal Services

A direct mail service was introduced from Kuching, Sibu and Miri to Canton (Mainland China).

There was a marked increase in the volume of mails received and despatched.

MAIL STATISTICS

PARCELS

Year	Value of C.O.D. Parcels received from		Number of Ordinary Parcels		No. of Air Parcels	
	U.K.	Malaya	despatched	received	despatched	received
1952	\$ 54,800	\$ 527,500	14,280	32,350		
1953	45,900	575,400	11,470	23,600		
1954	36,500	579,200	13,130	28,320		
1955	33,900	451,000	14,380	36,140		
1956	29,290	390,640	17,770	40,700		
1957	27,010	492,190	20,198	74,055		
1958	26,225	451,515	21,723	45,856		
1959	34,033	500,512	21,443	48,776	119	1,988
1960	29,153	614,287	27,036	56,983	148	2,903

NOTE: There is no C.O.D. outgoing service from Sarawak.

POSTAGE STAMPS

(Value in decimals of a million dollars)

Year	Stamps Sold Value	Service Value
1952	0.242	0.364
1953	0.358	0.538
1954	0.369	0.553
1955	0.436	0.684
1956	0.463	0.694
1957	0.664	0.996
1958	0.652	0.978
1959	0.742	1.113
1960	1.096	1.644

NOTE: Statistics show that in all despatches the ratio of unstamped Government mail to stamped mail is approximately one to two. Service Value is cash revenue plus fifty per cent.

XIV

INFORMATION, PRESS AND BROADCASTING

CONSIDERABLE expansion took place in the field of information during the course of the year. The staff was expanded and new equipment was purchased.

The additional staff members will help to provide the press and radio with an improved service. New appointments include two Assistant Press Officers, additional Malay and Dayak Editors, a News Editor and two Assistant News Editor/Translators. The latter three posts are intended to provide a Reuter service of overseas news for the local press which it is hoped to commence in January, 1961.

In the past the local newspapers have been too small to be able to afford the services of one of the well-known international news agencies and it is Government's aim to provide this service at reasonable cost and to provide it in translated form for the Chinese papers.

A Branch Information Office has been opened in Sibu under an experienced member of the staff and this should enable the Information Office to provide a very much better service for the press in Sibu.

There are now no fewer than eleven newspapers in Sarawak, an English language paper, a Malay paper and nine Chinese papers. Of the latter four are in Kuching, four in Sibu and one in Miri. A tenth paper, the *Sarawak People's Daily News*, has been registered in Miri but had not commenced publication by the end of the year.

One new paper, the *Min Chong Pau*, commenced publication in Sibu in April and one Sibu paper, the *Yueh Sheng Pau*, ceased operation and was replaced by the *Yieh Hua Siang Pau*.

Mr. Kong Chou Thai of the *Chinese Daily News* and Mr. Lau Hui Siong of the *See Hua Daily News*, Sibu, visited Australia

as guests of the Australian Government in April and Inche Balia bin Munir, formerly Assistant Editor of the *Utusan Sarawak*, was awarded a scholarship to study practical journalism in Australia under the Colombo Plan.

Owing to the need to provide more office space, the reading room was closed at the end of the year and a new reading room was due to be opened in the entrance of the old Sylvia cinema building which is at present being used as the office for the 1960 census.

The Information Office helped to look after numerous visitors. At the end of the year a publication entitled *Information on Sarawak* appeared which, it is hoped, will help to provide visitors, would-be visitors and investors with the information they are likely to need about Sarawak.

This publication replaces the previous *Handbook of Sarawak* which appeared more than ten years ago and has been out of print for a long time.

BROADCASTING

On January 1st, 1960, Radio Sarawak inaugurated its daily early-morning transmissions commencing at 7 a.m. with the relay of the world news from the B.B.C. London, and followed by entertainment programmes. The Service is now broadcasting fourteen hours of programmes daily on two simultaneous transmissions, each radiating on both the medium and short wave bands. Medium wave reception within a wide radius of Kuching was further strengthened on April 1st when a new 10 kW. transmitter came into operation. The purchase of this transmitter was financed by a grant of £12,500 from Her Majesty's Government.

The Schools Broadcasting Service made further progress during the year, and generous aid has been received from both the Commonwealth Government of Australia and from the Asia Foundation in the form of powerful receivers for installation in school classrooms throughout the country. Over 400 schools are now using the Service, which has proved to be immensely popular with teachers and students alike. All programmes are produced locally in Broadcasting House and the main effort is directed to Native primary schools, which have a particular

claim upon this supplementary educational service by radio. The assistance of the New Zealand Government in seconding a Schools Broadcasting Officer to Sarawak under the Colombo Plan has been of prime importance and plans for the extension of the Service are at present being investigated.

The quality of reception throughout the country and abroad was maintained at a high level and Radio Sarawak has now established a firm reputation as one of the most popular stations in South-East Asia. The quality and content of programmes continued to rise and the Service is rapidly becoming, as is intended, a full and reliable mirror of local public opinion. The high aims of public service broadcasting are clearly approved by listeners of all races who, whatever their stage of development, demand impartial news, domestic and foreign, objective commentary, serious talks and high quality entertainment. The performance of local artists and contributors has continued to rise and domestic speakers have responded to the encouragement always given to discuss at the microphone in responsible fashion all matters of interest to the public. Further progress has been made in the field of professional education and three members of the staff were awarded scholarships under the Colombo Plan to proceed to Australia for higher technical studies. Plans were made during the year for some important reconstruction and extension works at Broadcasting House to provide additional much-needed technical and production facilities.

XV

LOCAL FORCES

Sarawak Rangers

AFTER seven years' distinguished service in Malaya, the Malayan Unit of the Sarawak Rangers was disbanded on the 31st March, 1960, and a new unit, known as the Far East Land Forces Unit, was formed on the following day for service with the British Army. The new unit is commanded by a British officer and has an establishment of about 100 Ibans many of whom served in the previous unit. The strength is shortly to be increased by the addition of an Animal Transport Section and a Tracker Dog Section. The Rangers are liable to world-wide service and, like the previous unit, the Reserve will provide an excellent field of recruitment for the Field Force Reserve.

At a parade in Malaya in June, attended by Sir Richard Hull, Commander-in-Chief of Far East Land Forces, and Mr. F. D. Jakeway representing the Government of Sarawak, a new flag was presented to the unit on behalf of the Governor by Temenggong Jugah. On the same occasion the Government of the Federation of Malaya presented a ceremonial kris in recognition of the part played by the Rangers in operation against Communist terrorists.

PART III

I

GEOGRAPHY AND CLIMATE

SARAWAK lies between latitudes $0^{\circ} 50'$ and 5° North and longitudes $109^{\circ} 36'$ and $115^{\circ} 40'$ East, occupying most of the north-western coastal area of the island of Borneo. With an area of about 47,500 square miles the territory covers a little less than one-sixth of the island, which is the third largest in the world and the largest of the 3,000 or more islands comprising the East Indies Archipelago.

The boundary between Sarawak and Indonesian Borneo follows the watershed between the rivers flowing generally north-westerly into the South China Sea and those flowing into the Celebes and the Java Seas. Although much of this watershed is not particularly high the country is generally rugged and topographically complex, and the boundary is unsurveyed. Because of the almost continuous presence of heavy cloud, part of this boundary and the adjoining Sarawak territory have not yet been covered by satisfactory air photography and only preliminary reconnaissance mapping is available. In the north, Sarawak adjoins North Borneo and in the north-west the State of Brunei forms a double enclave. The boundaries between Sarawak and these two countries run through much easier country and sections have been surveyed as the need has arisen.

Mount Murud, of about 8,000 feet, is Sarawak's highest mountain, dominating an area of practically unexplored ravines, plateaux and involved mountain ranges rising to over 5,000 feet. Knowledge of this area has been gained by visual reconnaissance from Royal Air Force aircraft and by various expeditions, notably those of the Sarawak Museum, Geological Survey Department and the Oxford University Expedition to the Usun Apau Plateau region in 1956.

The remainder of the country comprises an alluvial coastal plain and a belt of undulating country separating the coastal

plain from the sharply rising mountainous interior. The coastal plain varies in width from less than a mile at Miri to over a hundred miles, and contains large areas of peat swamps of various depths. The beaches are generally of mud and mangrove or *nipah* palm. The belt of undulating country is broken by a few mountain groups, generally not more than 2,500 feet in height. Shallow coastal waters and the existence of bars at river mouths limit the development of deep seaports.

The main rivers rise in the interior ranges and flow fast through deep gorges and over numerous rapids until they reach the undulating country and the coastal plains, where they meander towards the sea. In spite of the high rainfall and the steepness of the interior mountains no spectacular waterfalls have yet been discovered, the rivers descending to the undulating country in a series of rapids rather than by waterfalls. The largest river, the Rejang, has a length of 350 miles and is navigable for small coastal steamers as far as Kapit, 150 miles upriver.

The greater part of Sarawak is still covered by primary rain forest, and large areas are practically uninhabited except for scattered bands of nomadic Penans. Much of the remainder of the land is used for agriculture, mainly on a method of bush fallow farming. One distinctive feature of the country is the large area of swamp forest. These forests produce the bulk of the timber exported, notably *ramin*, one of the main exports and used extensively in Great Britain and Australia for making furniture. There are a few small areas of natural grassland near the coast on which cattle are raised, but grazing land, either natural or developed, is very limited.

Principal Towns

Kuching, the capital, is situated on the Sarawak River eighteen miles from the sea and can be reached by ships up to 2,500 tons. Besides being the seat of government for Sarawak, Kuching is the administrative headquarters for the First Division. The town is growing rapidly and the population is estimated at about 60,000 of whom the trading community is mainly Chinese, with large Malay and other smaller communities occupying suburban areas. The main part of the town, with its wharves

and warehouses, Government offices, museum and other public buildings, schools and places of worship of the various communities, and the main residential areas, is on the south side of the Sarawak River.

Access to the north side is mainly by small passenger ferry but vehicles may reach the northern residential areas across the river by a suspension bridge and a minor road. On the north bank of the river directly opposite the centre of the town are situated the Governor's residence, the Astana, formerly the palace of the Rajahs of Sarawak, and Fort Margherita, another link with old Sarawak. Behind these buildings are residential areas and on the river banks upstream and down are extensive Malay *kampongs*. The business part of the town and the inner suburbs are administered by a fully-elected Municipal Council. Control of the outer suburbs and residential areas is in the hands of the Rural District Council.

Sibu is the second largest town in the territory and is expanding very rapidly. It is situated about eighty miles from the sea at the head of the Rejang delta and can be reached by ships of up to 2,500 tons. The population is estimated at about 30,000 and the town is the administrative headquarters of the Third Division. It is low-lying and subject to flooding when the spring tides coincide with the arrival of floodwaters from the Rejang catchment areas. The inhabitants of the town are mainly Chinese, with Malay and Melanau settlements adjoining the business areas. Sibu, with Sarikei and Binatang lower down the river, handles a large proportion of the import and export trade of the country.

Miri is the administrative headquarters of the Fourth Division and owes its existence to the opening of the Sarawak oilfields in 1910. Although oil is still produced, the neighbouring oilfields of Brunei have become of far greater importance. All the oil won in British Borneo is exported through Lutong which is in Sarawak, seven miles north of Miri. The Miri river has a shallow bar which prevents all but small coastal vessels from entering, and the shallow coastal waters force larger ships to anchor about three miles out to sea. General cargo is handled by lighter and oil from the Lutong refinery and storage tanks is loaded through underwater pipelines.

Simanggang and Limbang are the administrative headquarters of the Second and Fifth Divisions respectively. Both have bazaars and wharves for coastal and river launches. Navigation on the Lumar River, on which Simanggang lies, is hampered by a tidal bore.

Binatang and Sarikei are the main towns of the Rejang River delta and are important ports for overseas shipments of pepper, timber and other products of the Rejang River plains. The Tanjong Mani deep water anchorage further down the river can accommodate vessels of up to 10,000 tons.

Of the other towns Bintulu is the largest and development of this coastal town should follow the opening up of the hinterland for rubber growing.

CLIMATE

The characteristic features of the climate of Sarawak are heavy rainfall, a uniform temperature and high humidity.

The mean annual rainfall at Kuching is 158 inches. This compares with London's mean annual of twenty-four inches, New York's forty-two inches, and Singapore's ninety-five. It is not unusual for rainfall to exceed eight inches in a day at one place (especially during the north-east monsoon) whilst at another place sixty miles away there is no rain recorded during the same period. A large area of the country receives between 120 to 160 inches of rain. The highest recorded fall is at Long Akah, up the Baram River, with a mean annual rainfall of 236 inches.

The surface mean temperature varies between 72°F and 88°F with the highest recorded maximum 97°F and the lowest minimum 68°F. The relative humidity is generally high throughout the year.

From the beginning of October until nearly the end of February, the north-east monsoon brings heavy rainfall, particularly in the coastal belt. The monsoon moves at a fairly uniform speed across the China Seas, but once south of latitude 5°N, its average speed decreases, and at times its boundary may become stationary or even make a temporary retreat. The rain accompanying the boundary may then persist for several days and

add substantially to the total rainfall. An exposed coastal belt like Sarawak is therefore heavily influenced by this boundary layer on its southmost trends, giving a rainfall of twenty inches and more during, usually, November, December and January, whilst areas in Borneo, south of Sarawak (except the north-west coast of Indonesian Borneo) are sheltered from this.

Four seasons can be distinguished : the north-east monsoon—as has been said—from October to January or February; the mild south-east monsoon from April to July or August, and two shorter seasons of about eight weeks each, separating the end of one from the beginning of the other.

During the south-east monsoon, Kuching's mean monthly rainfall is nine inches, mostly in the afternoon between three and six o'clock. At Miri during the same period the heaviest rain is from thunderstorms of sharp intensity during the early hours after midnight. During these months particularly, the form and movement of storms makes it doubtful that a single observation station in a given area, say Miri Town, is at all representative of rainfall in the immediate surroundings. There are insufficient observation stations in concentrated areas to make isohyetal patterns associated with individual storms. Yet it is from these thunderstorms that the heavy rainfall comes.

In spite of the heavy rains, there are long periods of bright sunshine. From March to October there are usually between 180 and 220 hours of bright sunshine each month. From November to February, there are between 100 and 180 hours of bright sunshine monthly.

There is no weather forecasting office. There are three meteorological observation stations and forty-three rainfall recording stations.

The Appendix at page 230 gives climatological summaries for Kuching, Miri and Bintulu.

II

GEOLOGY

SARAWAK consists geologically of two distinct regions. North of the Batang Lumar Valley, it is built of a monotonous series of Tertiary and late Cretaceous sedimentary rocks, dominantly sandstone and shale, with some limestone and coal, and a few areas of lava, volcanic ash, and intrusive igneous rocks. The sedimentary rocks were deposited in a marine geosynclinal trough on the northwest side of a triangular continental core that is exposed mainly in Kalimantan, but also in Sarawak west of the Batang Lumar Valley. Sedimentation was interrupted by successive periods of folding that welded the older sedimentary rocks onto the core. Younger rocks were deposited to seaward and thus, north of the Batang Lumar, the older rocks are in general close to the core, and successively younger rocks appear as the country is traversed from the Lumar or the Sarawak/Kalimantan border towards north Sarawak and Brunei.

The rock formations of the continental core in west Sarawak, which are partly overlain by Tertiary sediments, are considerably older than those building the rest of Sarawak, being of Cretaceous, Jurassic, Triassic, Permian, and possibly even earlier origin. Metamorphic rocks, and sediments such as limestone, shale and sandstone, are associated with volcanic rocks and intrusions of granite, granodiorite, diorite and gabbro.

The most recent deposits, which occupy about 7,100 of the 47,000 square miles of Sarawak, are those forming the alluvial plains along the coast and reaching up into the river valleys. The remainder of the country is made up of some 36,600 square

Kelabit coffin and jar burials: a new Museum exhibit (completed in May, 1960). (*Sarawak Museum*)

Overleaf:

Excavating down to 170 inches (c. 100,000 B.C.) at Niah Great Cave—the deepest yet (as at 15th December, 1960). (*Sarawak Museum*)

Skin of huge Orang-Utan used as dancing cloak, Long Moh, Baram River. (*Sarawak Museum*)









miles of the younger geosynclinal sedimentary rocks, 1,600 square miles of the continental core, and 1,700 square miles of volcanic and other igneous rocks.

Oil and some of the coal are associated with the younger geosynclinal rocks, but most of the metallic minerals and the remainder of the coal occur in the continental core area of west Sarawak. An account of the mineral resources is given in Part II chapter VII above.

GEOLOGICAL MAPPING

Reconnaissance geological mapping has now been completed for the whole of Sarawak, partly on a scale of 1:125,000 and partly on 1:250,000. Memoirs describing the geology of four areas, with accompanying coloured geological maps, have been published and are listed at the end of this chapter. The memoir for a fifth area, and another on part of northern Sarawak that was mapped together with the State of Brunei, are being printed, and the maps are ready for inclusion. The description and map for the last area are being prepared, and should be published in 1961.

During 1960 the work of the Geological Survey was passing through a phase of rapid evolution from the essential initial reconnaissance to increased advisory work and projects with more specific economic objectives. The reconnaissance was designed to cover the whole territory in a limited time and, although this has meant that work stopped well short of complete understanding of the geology in almost every area, the full coverage has enabled a number of objectives to be achieved. Commercial interest has been directed to areas most likely to yield valuable minerals, and sufficient data have been provided to justify the investment of capital in prospecting. Areas for more detailed mapping and mineral investigation have been selected, and mapping has already started in the Sematan and Lundu areas, with the main objective of aiding the search for more bauxite, and in the Penrissen area southwest of Kuching, where gold, mercury, diamonds, coal and aluminous laterite are known to occur.

RESEARCH

The basic research on which the Geological Survey is engaged is supplemented by such techniques as chemical analysis of rocks, assays of minerals and ores, testing of the strength of rocks and constructional materials, palaeontological research, and dating of rocks from the breakdown of radioactive elements. These techniques require either specialised equipment that cannot be economically bought for use in a small Survey, or specialised knowledge that is not available in the Department in Sarawak. The Geological Survey is fortunate in being able to call for assistance with such techniques from outside organisations such as the Mineral Resources Division and Photogeological and Geophysical Sections of Overseas Geological Surveys; the British Museum (Natural History); the Royal Dutch/Shell Group of companies at Seria in Brunei; the Research Division of the Federation of Malaya Department of Mines; the Sarawak Departments of Agriculture and Public Works; and Universities in the United Kingdom, Australia, New Zealand and the United States.

The Mineral Resources Division is making tests on potential glass sand, detailed chemical and physical tests on bauxite, chemical analyses in connection with investigation of the origin of bauxite in Sarawak, and assays for gold. The Geophysical Section of Overseas Geological Surveys undertook the initial research into the magnetic susceptibilities of rocks from the Tanjong Datu, Sematan, and Lundu area of west Sarawak in 1960, to determine whether ground or air-borne magnetometer surveys could aid in the detection of hidden or undetected occurrences of the source rocks from which bauxite has been formed in that area; the research will probably be continued in Sarawak by a geophysicist from the Section in 1961.

The Bau goldfield in west Sarawak was examined by J. H. Harris of the Malayan Department of Mines in 1958, and laboratory tests of samples collected by him were later made in Malaya. The results of these tests were combined with Mr. Harris' original report by his successor, P. M. Sheahan, in 1960. The report has since been made available to Bau gold-miners and indicates how improvements could be made in mining and ore treatment, particularly in assaying and in gold extraction from the "clay-type" ores.

Palaeontological research has continued in the laboratories of the Royal Dutch/Shell Group in Brunei, on material collected by the three oil companies and by the Geological Survey. More strictly academic work on similar material has been done by the British Museum (Natural History) and, in 1960, Dr. C. G. Adams visited Sarawak to collect new material for further research during 1961. The Shell companies co-operated in this by discussions, provision of type material, and participation in one of several field trips made by Dr. Adams.

The Department of Agriculture in Kuching analysed a large number of limestone samples from Sarawak during 1960 to determine their magnesia content and hence possible value as fertilisers. One area of high-magnesia limestone was detected, and further work will be done on this during 1961.

ECONOMIC GEOLOGY

The bauxite mining industry continues to flourish in west Sarawak. The area of the mining lease held by the company at Sematan is being increased, and the issue of a lease for the Bukit Gebong deposit is under consideration. The company's prospecting is being assisted by detailed mapping by the Geological Survey, which has already revealed several areas worth further attention. The company will employ a geologist in 1961 to supervise prospecting and assist in the control of mining and ore treatment.

A pamphlet on cement-making possibilities in British Borneo was prepared by the Geological Survey during 1960 and will be available early in 1961. If a single plant were erected, the most suitable place would appear to be in north Sarawak, which is centrally situated on the sea-board, and where limestone, argillaceous material, and natural gas are all available reasonably close together. On the other hand, the main towns in the region are scattered along a thousand miles of coast, and the additional cost of establishing more than one plant might be off-set by reduction in transport costs for the finished product. The Survey has therefore investigated possible raw materials from a number of places, including west Sarawak.

The Survey has continued to co-operate with the Public Works Department and other branches of Government in regard to civil engineering projects, soil surveys and the like. In the absence of a Mines Department, it has played a large part in framing a mineral prospecting and mining policy aimed at realisation of the value of the mineral resources at the earliest possible stage in the development of Sarawak.

GEOLOGICAL SURVEY DEPARTMENT

The Geological Survey office in Kuching is the headquarters of a combined department established in 1949 for Sarawak and North Borneo. Expeditions go from the headquarters into Sarawak for trips ranging from a few days to several months, the geologists then returning for laboratory work on the materials collected and for report-writing and map-making. The office includes a laboratory, a workshop, and a museum in which geological specimens are displayed. A geological reference library is also maintained and includes records of past geological and mineral exploration. Publications include the regular series of annual reports, regional memoirs, and bulletins on selected subjects; the results of the 1:50,000 mapping that has now been started will be published in a series of reports.

TRAINING

In-service training is given in the Department to Technical Assistants working in the field and in the drawing office. In addition, one student has recently completed a year's work with the South Australian Department of Mines after obtaining his B.Sc. degree in Geology under the Colombo Plan at Adelaide University, and is expected to join the Department in due course. During 1961, one Technical Assistant will go to New Zealand to take seven months of the first year of a B.Sc. Geology course and, at the same time, work in the library of the New Zealand Geological Survey; on his return, he is expected to take up the post of Librarian in the Kuching office of the Survey. Another Technical Assistant will go to Japan, also under the Colombo Plan, for training in workshop and dark-room techniques and assaying, mainly with the Geological Survey of Japan.

Sketch Map showing
SARAWAK GEOLOGY

SCALE 1:3,000,000 OR ABOUT 48 MILES TO ONE INCH

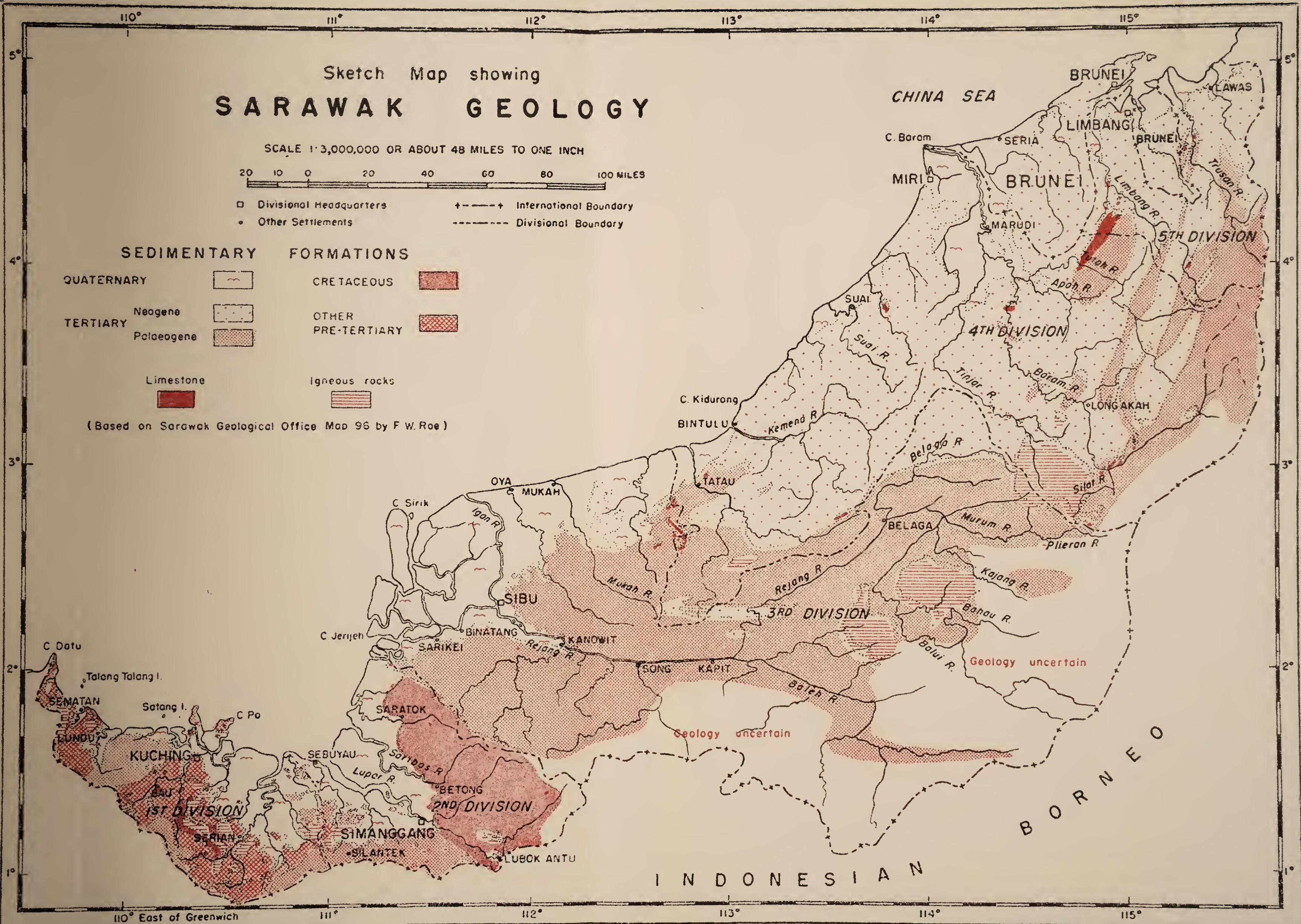
20 10 0 20 40 60 80 100 MILES

- Divisional Headquarters
- +---+ International Boundary
- Other Settlements
- Divisional Boundary

SEDIMENTARY FORMATIONS

QUATERNARY		CRETACEOUS	
TERTIARY			
Neogene			
Palaeogene		OTHER PRE-TERTIARY	
Limestone		Igneous rocks	

(Based on Sarawak Geological Office Map 96 by F W. Roe)



110° East of Greenwich

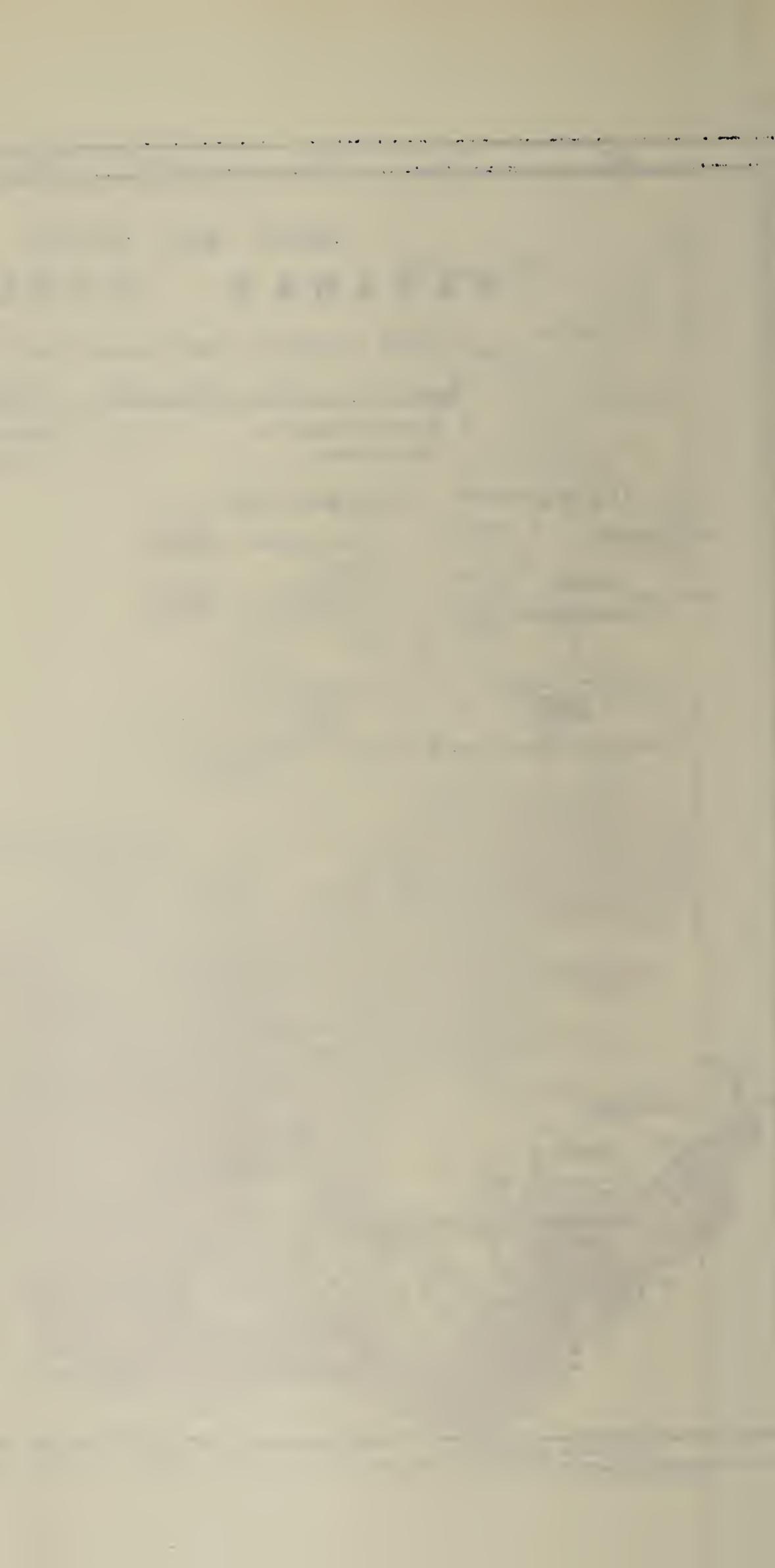
111°

112°

113°

114°

115°



INTERNATIONAL MEETINGS

Sarawak was represented by officers of the Geological Survey during 1960 at the United Nations Seminar on Aerial Survey Methods and Equipment in Bangkok, the fourth sessions of the ECAFE Sub-Committee on Mineral Resources Development and Working Party of Senior Geologists in Tokyo, and the ninth session of the ECAFE Sub-Committee on Metals and Engineering at Rourkela, India. Attendance at these meetings not only makes available much useful information about other countries of the ECAFE region and the methods of prospecting and mining used in them, but also makes possible mutually advantageous contacts with fellow workers in other countries, and enables Sarawak representatives to show that everything possible is being done to discover and develop the minerals of their own country.

PUBLICATIONS

Annual Reports of the Geological Survey Department (1949-1960)
(Kuching: Government Printing Office).

Memoirs: (the four following memoirs form part of a series of seven in which the geology and mineral resources of the whole of Sarawak will be described, with accompanying coloured geological maps):

- Memoir 1. *The Geology and Mineral Resources of the Strap and Sadong Valleys, West Sarawak, including the Klingkang Range Coal*, by N. S. Haile. (Kuching: Government Printing Office, 1954).
- Memoir 3. *The Geology and Mineral Resources of the Kuching-Lundu Area, West Sarawak, including the Bau Mining District*, by G. E. Wilford. (Kuching: Government Printing Office, 1955).
- Memoir 7. *The Geology and Mineral Resources of the Lutar and Saribas Valleys, West Sarawak*, by N. S. Haile. (Kuching: Government Printing Office, 1957).
- Memoir 8. *The Geology and Mineral Resources of the Upper Rajang and Adjacent Areas*, by H. J. C. Kirk. (Kuching: Government Printing Office, 1958).

The remaining three memoirs, which will probably be published in 1961, are as follows:

- Memoir 10. *The Geology and Mineral Resources of Brunei and Adjacent Parts of Sarawak, including the Seria and Miri Oilfields*, by G. E. Wilford.
- Memoir 11. *The Geology and Mineral Resources of the Lower Rajang Valley and adjoining areas, Sarawak*, by E. B. Wolfenden.
- Memoir 13. *The Geology and Mineral Resources of the Suai-Baram Area, Sarawak*, by N. S. Haile.

Bulletins:

- Bulletin 2. *Geological Accounts of West Borneo*, translated from the Dutch, edited by N. S. Haile. (Kuching: Government Printing Office, 1955).
- Bulletin 3. *The Geology of Sarawak, Brunei, and the Western Part of North Borneo*, by P. Liechti et al. (Kuching: Government Printing Office, 1960).

III

HISTORY

I — PREHISTORY

Stone Ages

THE principal work undertaken in this field during 1960 was in continuation of a long-term programme for extensive excavations at the Niah Caves, Fourth Division. As a result of four previous digging "seasons" (1954, 1957-9) there, Niah has become world-renowned. This was the only large-scale stone-age archaeology at present being undertaken in South-east Asia—mainly because of culturally unstable or politically disturbed conditions in other territories previously active in the study of prehistory.

The 1960 dig was mainly conducted from February to the end of May and again from mid-December through into 1961. Work on a wide scale was once more possible, thanks to a fourth grant from the Calouste Gulbenkian Foundation of Lisbon and continuing support from the Shell Group of Companies, the Asia Foundation, the Chicago Natural History Museum and other sources, as well as the Sarawak Government itself.

It will take at least four years more to complete the main initial phase of this Niah work. Results already to hand have altered the picture of Bornean prehistory, and thrown some new light over a much wider area—as increasingly attested by outside writers in recent issues of *Discovery*, *Exploration*, *Life*, *Antiquity* and other international journals.

By the now well-established method of determining age through declining radio-activity, it has proved possible to get some quite accurate dates from Niah. Radio Carbon-14 and other test materials indicate that the Sarawak Museum unit is now excavating well below 50,000 B.C. In December a further extension downward from the previous lowest probe at 170 inches indicated that there is still a considerable way to go

before bedrock is reached. As a rough working hypothesis at Niah, one inch of excavation is taken as normally representing between 200 and 300 years of past human depositional activity. The greater part of the matter excavated to date is primarily of human and only secondarily (often negligibly) of geological origin.

At the present stage, it is only safe to generalize for the upper levels at Niah in a preliminary way. The initial picture here—although subject to modification as a result of further study—provides the fullest yet available from any one site in orderly sequence in this part of the world.

PRELIMINARY NIAH PHASEOLOGY (as dug so far)

<i>Phase</i>	<i>Main Characteristics</i>	<i>Approx. Niah Start Date (Estimated)</i>	<i>Methods of Dating</i>
1. Middle Palaeolithic	"Mid Sohan" Flake	40-50,000 B.C.	Flake below C-14 (GR 1339)
2. Upper Palaeolithic (i)	Chopping tools and large Flake tools	30,000 B.C.	Strata with C-14
3. Upper Palaeolithic (ii)	Small Flakes	25-30,000 B.C.	C-14
4. "Palaeo-Mesolithic"	Advanced Flake	10,000 B.C.	C-14 and Stratification
5. "Mesolithic"	Edge-ground tools; Melanoid dentitions	c. 7,000 B.C.	Stratification
6. Neolithic (i)	Polished tools;	c. 4,000 B.C.	Stratification,
7. Neolithic (ii)	Mongoloid dentitions, pottery		comparisons and C-14
8. Chalcolithic	Bronze traces; elaborate pottery	c. 250 B.C.	Known associations and C-14

As the excavation goes deeper at Niah, problems of technique and phase-sequence determination become increasingly complicated. The Radio-Carbon method is seldom reliable beyond 50,000 years. It is hoped to apply the new Potassium-Argon method to deeper layers in the near future, but this is still experimental as well as very expensive. With the assistance of Shell geologists and palaeontologists (including a unit working with the excavation team during March), efforts are being made to apply techniques of pollen sampling and volcanic-ash content.

A series of chemical analyses undertaken with Dr. C. D. Sutton of the Government Soils Laboratory may also provide some positive indications, while oyster-shells underlying deeper layers at Gan Kira are now being considered from this point of view in the British Museum, London.

A further difficulty working deep is that everything except stone becomes tremendously fragile, through the mere accumulation of time. Ordinary food shell, so abundant in the upper stone-age deposits tends to disintegrate completely by 100 inches. Larger food and human bones do not persist much longer unless aided by chance—such as the mineralising influence of a drip carrying lime-water from the cave ceiling or local protection by a small piece of rock fallen out of the cave roof.

Clearly, therefore, this deeper work requires much care. It can only be undertaken by the best trained excavators (mostly Santubong Malays) under close supervision from senior staff, and working with fine tools (principally paint brushes and dental picks). Nevertheless, rewarding results are slowly coming to hand. Outstanding of those reported upon in 1960 are the skull of a youth, age about sixteen, from the 40,000 year level; this has been the subject of a detailed report by Dr. Don Brothwell of the Duckworth Laboratory of the University of Cambridge. Also the extraordinary discovery of non-fossil remains of the Giant Pangolin (*Manis palaeo-javanica*), identified and reported on by Dr. H. A. Hooijer at the Natural History Museum, Leiden, Holland. The only previous specimen of this large extinct ant-eater is in fossil form from the Trinil beds of the Middle Pleistocene (at more than 100,000 B.C.?) in Java. At Trinil the beast was discovered and described by Dubois in the same prehistoric horizon as *Pithecanthropus*, "Java Man". Now, after half a century, we find the same strange species again at Niah—in the form not of fossil, but of fresh bone which (with a little ingenuity) could be cooked up fresh into a passable soup. Further new non-fossil finds of wide interest in the cave deposit include the remains of tiger, tapir and a tiny stone-age domesticated dog, which have not survived into historic times within Borneo. (For reports on these and other Niah discoveries, see the *Sarawak Museum Journal*, of which issues Nos. 15-16, 1960/61 are now in press. Nos. 13-14 include special reports on Niah subjects up to 1960).

Emphasis must be firmly placed on this somewhat painstaking "deep" aspect of the 1960 work, which is likely to become even more marked in the years ahead. This type of archaeology requires persistence. Any sort of haste, any trace of "treasure seeking", is right out of order. Where the vestiges of past human activities have lain undisturbed for thousands of years it is incumbent upon those who disturb them now to proceed with the utmost respect. The best results will not be won quickly. Moreover, the story of archaeology in Sarawak, within historic times, itself has a chequered and quaint antiquity, teaching the value of careful judgement and cautious generalisation in all work of this character.

The Antiquity of Local Archaeology

As early as 1878, following the great arguments of evolution and Darwinism, the Royal Society in London and the British Association for the Advancement of Science, stimulated by reports from the co-founder of Darwinism, Alfred Russel Wallace (who spent two years collecting in Sarawak), sent an investigator to explore the Niah and Bau Caves. The investigator was A. H. Everett, a naturalist sponsored by learned societies and a professional collector for the London Zoo, British Museum and other bodies. The results of nine months' cave exploration, reported by Everett as covering thirty-two caves, were published by the Royal Society in 1880. The result was a total blank from the prehistorical point of view. The report advised that it was useless to continue such studies at Niah, Bau or elsewhere in Sarawak. The effect was somewhat discouraging for the curious-minded who came after Everett.

Since Everett, there has been much speculation and various unsuccessful searches. Not only did these fail to prove the presence of very early man; there was no evidence of an acceptable kind even of the Neolithic or later stone age people, let alone the pre-agricultural Mesolithic and the primitive Palaeolithic—all now so firmly documented at Niah.

In 1947, the Sarawak Museum began to make more organised and prolonged efforts to fill in some of the missing bits of knowledge. The first problem was to know where to begin. That is always much the most difficult thing in this sort of investigation in this sort of country. There are virtually no

permanent open spaces in Borneo. Sooner or later everything reverts to jungle, every building is overthrown and every grave disturbed by the forces of nature. The obvious place therefore to begin an investigation of this sort is in a cave. The mouths of caves provide the only bits of dry ground in Borneo which never get over-grown by vegetation; and only occasionally are they disturbed by the innumerable burrowing animals and insects of the jungle.

Unfortunately, however, human beings like caves nowadays just as much as their ancestors are supposed to have done in the past. The caves of Borneo provide two tremendous attractions. On the vast ceilings of the caves there are millions of bats and tiny swiftlets. The latter, with their salivary glands, make cup-like nests; these, suitably cleaned, dried and boiled, are the basis of Chinese birds' nest soup—one of the most expensive of foods. On the floor of the caves these same swifts plus bats deposit an endless supply of guano; in some caves this may reach a depth of more than 100 feet. This guano is the only locally available fertiliser in Borneo.

In consequence, most unfortunately for the archaeologist, the floors of practically every cave in the island have been not only disturbed, but to a large extent removed, by man.

In the early cave explorations, which were undertaken by the Museum in conjunction with the Raffles Museum of Singapore, more than thirty caves were examined and excavated in the Bau district. Although a mass of interesting information about early occupants of the caves was obtained, it was invariably rather chaotic because of disturbance. The answers were exciting but unsatisfactory, stimulating but incomplete.

It was not until Sarawak Oilfields Limited had started drilling in the Niah river area that occasion arose to make a really thorough examination of the great cave a mile back from the Niah river in the limestone hills of Gunong Subis. Even a cursory inspection of the ground showed immediate evidence of human remains, and here there was something unique; because the cave mouth is so huge, both by height and width, it is also much lighter than any of the other caves, even including the very big ones in Mount Mulu on the Tutoh, further north in Sarawak. So much light in the cave's mouth means

that swifts and bats do not frequent that area—and only live further in where it is “good and dark”. There is therefore no outside reason for anyone to start messing about on the ceiling or digging anything.

Later Phases at Niah

When work was begun at Niah Caves in 1954, it was not expected that the Museum unit would be so fortunate as to be able to go back through the whole gamut of human development in this one place.

Only two sections of the cave mouth were at first explored—one in towards the darkness, the other right out in the mouth and in the full light (but still well protected from rain and wind).

This difference between the outer and inner mouth was reflected in what was found. On the inner side, the whole cave floor is nothing less than a stone-age cemetery. The skeletons are in some cases quite perfect, small people—smaller than the people who live round Niah today. On or beside the bodies were placed stone implements, including some beautifully made and polished stone axes and adzes. The head of the skeleton was usually crushed in, with a large, crude home-made earthenware pot placed as a sort of second head piece. The body had been laid out on coarse leaf matting, then wrapped round (in some cases but not all) with very fine netting—the texture and mesh of a child’s shrimping net.

This matting and netting, although extremely primitive, is nevertheless the first stuff of its kind ever found associated with stone-age burials or occupations in this part of the world. It suggests that this group of stone-age people at Niah were in some ways remarkably advanced as compared with those discovered under similar conditions elsewhere. But it is necessary to recognise here that the conditions at Niah are extraordinarily favourable to preservation over many centuries; and we are now talking about matting which must have been made probably many hundreds, perhaps many thousands, of years ago.

The cave mouth is here so perfectly dry, and the limestone walls act as a kind of air conditioning in the cave—making it, incidentally, one of the most delightful places to work in and

the only one in Borneo where we have ever been able to keep cool while digging. So it is possible that these finer things of primitive life have been found, so far, at Niah because the conditions for preservation are so excellent there.

But in support of the belief that the people themselves were quite advanced, although still living in the stone age, there is the evidence of the already mentioned earthenware pottery. Some of this is of better make and finer finish than similar pots which are still being made today by the Dayaks in the Balleh, the Kelabits in the uplands and other Borneo people who live too far away from Chinese shops to be able to carry metal cooking-pots and water-containers. An astonishing feature of some of the Niah pottery—astonishing anyway to a student of these things—is the presence of three colours, applied as a sort of glaze. These colours appear to have been obtained by the use of different clays, charcoal and iron ore haematite. But this suggests an advanced kind of craftsmanship which in fact has subsequently vanished and which has so far not been found so fully anywhere else, amongst stone-age people, in South-east Asia.

The haematite iron ore is another feature of the Niah stone age. Curiously enough, in widely separate parts of the world, (including Europe and America), primitive man discovered and used haematite to cover the corpses of the dead. In Niah this vivid scarlet and magenta haematite powder has been scattered in clouds over the cemetery.

The “Painted Caves”

Not only has the magenta haematite been scattered in clouds over the cemetery floor, however. It has been further used to decorate, in exciting ways, the walls of certain caves first discovered in 1959 and more fully explored during 1960.

These caves centre in separate cliff systems away from the Great Cave, as part of what we now know to be a vast labyrinth within the intricate limestone massif of Gunong (Mount) Subis at Niah. Extensive wall-paintings featuring ships-of-the-dead and other symbols are associated with carved boats placed on the cave floor below and used, long ago, as coffins. During 1960 work continued on recording this rich and in certain respects unique painted material, which contains elements of a prehistoric

pictographic script. At the same time, 2,500 square feet of related cave floor have been systematically excavated (to date). Although these results are still incomplete, they do show that major festivals and rituals were associated with funerary rites connected both with the wooden boat-coffins and the magenta wall-paintings. Wholesale destruction of property, human sacrifice and ritual cock-fighting appear to have been parts of what may have been real "cave orgies", early in the metal age. Tens of thousands of early imported ceramics, beads, gold and other material objects, are coming to light in these caves. In several ways these can be linked with the rich material previously excavated in sites between 700 and 1300 A.D. around the Sarawak River delta (see below). A further grant from the Calouste Gulbenkian Foundation should accelerate this side of the work in the near future.

The most rewarding of the "later" caves at Niah is one of many extremely difficult of access. As the project develops, the complexities of communication within the cavern labyrinth occupy an appreciable part of the whole effort—both in long-term planning and in the day-to-day work movements of the quite large labour force engaged at the peak of the "digging season".

A lot of thought and some ingenuity has been expended in improving the internal lines of movement within the cave darkness; and externally between the different limestone outcrops holding excavational caves. Not only the Museum unit, but also a small and select body of invited visitors had cause to bless one major advance in this direction during 1960. With the vigorous co-operation of the licensed cave guano collectors, through their voluntary committee working in conjunction with the Museum, more than a mile of newly-laid, elevated *belian* plank-walk has been completed between Pangkalan Lobang and the Great Cave. Thus, for the first time, initial approach to Mount Subis is made safe—if not actually easy—regardless of that frequent flooding which is a somewhat irritating feature of all lowland jungle in the area.

The Sarawak River Delta Sites

It is already clear that much of these later, metal age remains at Niah are closely linked to those already fairly

extensively studied 300 miles to the south-west, in the Sarawak River delta and elsewhere. It seems probable that Chinese and other Asian trading stations were established at the south-west corner of Sarawak and Borneo well beyond a thousand years ago. One of the principal purposes of an inter-monsoonal junk fleet visiting the west coast was barter trade both from the scattered area at Bau in the headwaters of the Sarawak River and further north-east at Niah where, however, the coast, river and weather patterns are less suitable for long-term anchorage or large-scale permanent settlement by traders depending on long external routes under sail.

Fortunately, we already have extensive material from the Sarawak River delta sites. As well as helping to interpret the later phases at Niah, this material is of much interest on its own account. During 1960 further work was done in this area.

The Sarawak Museum started digging in the delta in 1952. Unlike cave sites, these open and usually swampy prehistoric situations are extremely difficult to pinpoint; and impossible to work in during the bad weather which characterises the *landas* months from October to April. Each summer since 1952 progressive digs have been carried on in the delta country, slowly extending westward along the great sweep of bay between Tanjong Po and Tanjong Datu, the south-west extremity of the island of Borneo. Altogether nearly forty probably significant prehistoric sites have now been located in this south-west sector. Of these, six have so far been excavated to some appreciable extent. These are:

1. Tanjong Kubur—a small headland half a mile west of Santubong; a "proletarian" cemetery of the early T'ang Dynasty (618-?800 A.D.).
2. Tanjong Tegok—an "aristocratic" small cemetery on a small headland half a mile east of Santubong; contemporary with Tanjong Kubur.
3. Bongkisam—flat land beside the river behind Santubong village, evidently a trading centre mainly in the Sung period (about 1,000 A.D.).
4. Sungei Ja'ong—two miles upriver from Bongkisam—a very extensive centre in the T'ang and perhaps early Sung eras; now embedded in the swamp through a prehistoric change in the course of the Sarawak River.

5. Sungei Buah—another river diversion site across river from Sungai Ja'ong and subsequent to it; including an impressive early iron foundry, the subject of particular excavation attention in 1958.
6. Bukit Maras—on the hillside above Bongkisam. This appears to have been inhabited by "Indian" people rather than Chinese types and special finds here include a fine 7th century stone buddha, a beautiful stone tile with a charging elephant, a tiny elephant in glass; gold and fine beads.

In addition, a seventh site was reconnoitred in November, 1960, with a view to fuller excavation in the near future. This is at Telok Serabang, a small bay just on the Sarawak side of Tanjong (Cape) Datu where the remains of an extensive iron foundry and other early metal-age materials are in evidence. Preliminary examination suggests that this may have been a settlement which was surprised and totally destroyed in a single incident—perhaps by pirates—nearly 1,000 years ago? The area is now being prospected for bauxite and some urgency therefore attaches to archaeological excavating there. Regular contact is kept with the Sematan Bauxite Company and other interesting finds are resulting from this co-operation.

A proportion of all the materials excavated both in the south-west coastal area and in the caves, is being preserved *in situ*, as it lies, naturally, on the spot. It is hoped, in the years ahead, out of these reserves to develop simple "site museums" where people can go and study both prehistoric setting and archaeological technique in the natural surroundings where the main finds—brought back to the Museum in Kuching—originated.

The Mainland Trade

By the end of 1960, archaeological and related work has built up a picture of a really big scale traffic with the Asian mainland starting with small-scale barter in the late stone-age and reaching a peak of intensity during the Sung Dynasty in China and the Sawankhalok Dynasty in Siam, around the 12th and 13th centuries A.D. and into the 14th.

We cannot yet tell for certain what it was that these traders of a thousand years ago sought. But early Chinese annals put

The Datu Bandar, Chairman of the Party Negara, addresses a meeting of supporters in a Malay village. (*Sarawak Vanguard*).





a high value on rhinoceros horn, hornbill ivory, edible birds' nests, gums and spices, as well as gold and precious stones, all here available.

Gold has long been worked in the area extending from Kuching south-westward to Sambas and Montrado in west Borneo. Though the production of this area is insignificant in comparison with the present world output, it must, if Borneo gold was known in the days of the great Indian trading expeditions, have been of considerable importance in the ancient world. The fabulous Golden Chersonese may well have included western Borneo.

It is likely that for a time Sarawak fell under the sway of the great maritime empire of Srivijaya, the Indian Buddhist thasassocracy centred on southern Sumatra, which reached its zenith towards the twelfth century. Srivijaya fell about a century later before the attacks of Siam and the Hindu-Javanese kingdom of Majapahit, and Borneo came within the sphere of influence of the latter. The Majapahit empire in its turn began to crumble early in the fifteenth century before the Muslim States established by the advance of Islam into the archipelago. On these aspects, research continues.

It is not premature to suggest, however, at this stage, that the cultural and economic importance of west Borneo in general and south-west Sarawak in particular, may well prove to have been much greater than is generally supposed, at least during these periods prior to the advent of the first western influences. The Chinese and Indian sites round Santubong are on such a scale that it is difficult to regard this area as other than a major trading centre for the whole of South-east Asia. It may well have been an entrepôt for the exchange of trade between sailing ships coming from as far west as Madagascar and India, meeting with a powerful junk-fleet coming down on the monsoon from China and the Mekong delta. Certainly, similarly rich sites have not yet been found anywhere else in the area, despite extensive archaeological search during earlier decades of this century in Indonesia and along the Malay peninsula.

Linguistic research, now being carried on in co-operation with scholars of the Ateneo de Manila in the Philippines and Mr. Stephen Yong, Secretary-General of the Sarawak United People's Party, swears in the Chairman of the Miri branch of the party, Inche Mahari bin Mokti. (*John Tan*).

elsewhere, is also supporting the implications of the Maragtas folklore cycle (two major texts of which have already been published in the *Sarawak Museum Journal*). This links west Borneo and the southern Philippines in major cultural migrations about the 12th century A.D. onward. It now seems probable that there are close affinities between the Visaya and other Philippine populations and the Bisayahs of Sarawak and North Borneo, along with other groups in Brunei and Kalimantan.

The Advent of Islam and the West

Islam came late into Borneo, and soon made up for lost time by initiating Mohammedan operations with great zeal early in the 15th century. From this period, the decline of outside contacts and cultural integrations seems to have developed. The control of trade was now largely centred northward in Brunei Bay; and the already powerful pre-Islamic Sultanate of Brunei acquired a new and wide influence in the archipelago.

The first western expedition to encircle the globe reached Brunei town in 1521, after the murder of its leader, Magellan, in Manila. Pigafetta, main chronicler of the voyage, has left a vivid account of a thriving Brunei city on stilts and an immensely rich Sultanate which welcomed its visitors with gifts carried upon caparisoned elephants.

The Spanish and Portuguese, soon followed by other European races, further restricted inter-island contact in the interests of their own monopolies of the spice and other trades. The Spaniards, occupying the Philippines soon after Magellan's discovery, made two punitive expeditions to Brunei. The second of these caused the abandonment of the royal headquarters at Kota Batu, which the Sarawak Museum's excavations show to have been continuously occupied for at least the previous seven centuries. From then on, the Sultanate lost strength and presently even lost control of the adjacent upriver areas within west Borneo. But Sarawak was still only the name of a river on early maps. Kuching did not exist—until the arrival of the first Englishman to settle in west Borneo.

II — HISTORY

The history of Sarawak as an integral State begins with the first landing in August, 1839, of James Brooke. At that time Sarawak was the southern province of the Brunei Sultanate. The oppression of the Sultan's viceroy, Makota, had goaded into

revolt the Malays and Land Dayaks resident in the area known as Sarawak Proper, and the Sultan had sent his uncle, the Rajah Muda Hassim, to pacify the country. The insurgents were led by Datu Patinggi Ali. James Brooke departed after a short stay and returned in 1840, to find the fighting still in progress. At the request of the Rajah Muda Hassim, he interceded in the dispute, brought about a settlement, and was rewarded for his services by being installed on the 24th September, 1841, as Rajah of the territory from Cape Datu to the Samarahan River. This, however, is but a small part of the total area which was later contained within the State of Sarawak.

For the remaining twenty-three years of his life Rajah Brooke devoted himself to the suppression of piracy and head-hunting, often with the help of ships of the Royal Navy, which performed almost incredible feats of navigation and endurance. It is a story of high adventure, financial difficulty, and political persecution at home by the Radical party, followed by complete vindication and success. Sarawak was recognised as an independent State by the United States of America in 1850, and Great Britain granted recognition in effect by appointing a British Consul in 1864. In 1861 the territory of Sarawak was enlarged by the Sultan's cession of all the rivers and lands from the Sadong River to Kidurong Point.

Sir James Brooke, at his death in 1868, bequeathed to his nephew and successor, Charles Brooke, a country paternally governed, with a solid foundation of mutual trust and affection between ruler and ruled.

The first Rajah pioneered, subdued and pacified; Sir Charles Brooke, in a long reign of fifty years, built with such conspicuous success upon the foundations laid by his uncle that piracy disappeared, head-hunting was greatly reduced and the prosperity of the country increased by leaps and bounds.

Further large accretions of territory occurred in 1882 when the frontier was advanced beyond the Baram River; in 1885 when the valley of the Trusan River was ceded; and in 1890 when the Limbang region was annexed at the request of the inhabitants. In 1905 the Lawas River area was purchased from the British North Borneo Company with the consent of the

British Government. British protection was accorded to Sarawak in 1888.

Between 1870 and 1917 the revenue rose from \$122,842 to \$1,705,292 and the expenditure from \$126,161 to \$1,359,746. The public debt was wiped out and a considerable surplus was built up. In 1870 imports were valued at \$1,494,241 and exports at \$1,328,963. In 1917 imports totalled \$4,999,320 and exports \$6,283,071. Roads had been constructed, piped water supplies laid down and a dry dock opened in Kuching. There were telephones, and the wireless telegraph was opened to international traffic.

The third Rajah, Sir Charles Vyner Brooke, succeeded his father in 1917, and progress continued in all spheres. Head-hunting, as a result of tireless efforts, was reduced to sporadic proportions, revenue increased, enhanced expenditure resulted in improved medical and educational services, and in 1941, the centenary year of Brooke rule, the State was in a sound economic position with a large sum of money in reserve. As a centenary gesture, the Rajah enacted a new constitution, which abrogated his absolute powers and set the feet of his people on the first stage of the road to democratic self-government.

Before the Rajah's enactment could be given effective force, the Japanese invaded and occupied all Borneo. After an initial period of minor promise, everything began to run down to a standstill. By the end of 1944, conditions in Sarawak bordered on stagnation—and in some parts of the country starvation and chaos were imminent. The first clear evidence of a return to order came with the dropping of British and Australian paratroops of the Services Reconnaissance Department, in the Kelabit uplands early in 1945. The enthusiastically loyal response this force received paved the way to major Allied landings on Labuan Island and along the north-west coast of Sarawak as far down as Miri, beginning in June. After the unconditional surrender of Japan in August, Australian forces liberated Kuching itself on the 11th September, 1945.

Since that time, great strides have been made in social services, communications and the general development and prosperity of the country. Also during 1960 the first comprehensive history of Sarawak was published by the Cambridge University

Press: *The White Rajahs* by Sir Steven Runciman, the eminent Cambridge historian who made several visits to Sarawak and Brunei and had access to the State Archives in preparing his authoritative work. Also during the year, Mr. Vernon Mullen, a senior teacher in the Batu Lintang Training College at Kuching, completed the first Sarawak history for schools, shortly to be published by the Oxford University Press.

IV

SCIENCE AND THE ARTS

ALTHOUGH few parts of the world can offer more interesting prospects for research and more blanks in the map of scientific knowledge, appreciable progress was again made during the year in studies of Sarawak's human and natural sources, arts and crafts, especially in the fields of archaeology (already discussed), folklore, ornithology (birds) and herpetology (reptiles). Important work on entomology, both from medical and agricultural aspects, was also carried forward as part of the permanent specialist programme directly tied to departmental and administrative problems. Similarly, forestry research was stepped up; and reference collections extended within the joint Forestry-Museum herbarium, which is to be completely rehoused in 1961 (see Chapter V).

Special efforts were again made during the year to encourage and preserve Native arts and crafts. Two expeditions to the interior were undertaken to collect special materials and ensure their permanent availability in the country's collections.

Borneo has its own very vital arts and crafts. Inevitably these are threatened by the greatly accelerated and sometimes uncontrolled impact of western civilisation. In particular, the influence of government education and of mission activities has very generally been to create with extreme rapidity a new set of values the significance of which is often imperfectly understood by the native peoples most affected. Ten years ago every young Kenyah, Kayan or Kelabit was proud of his leopard teeth earrings (if he was fortunate enough to possess them) and his tattoos. Today these fashions are in many areas being replaced by short hair, short trousers and skin clear of any design except vaccination.

The traditional systems of independent craftsmanship, of embroidered bark-jackets, fine beads, carved bone hairpins, ornate symbolic figures in wood and decorated pipes, are threatened

with early extinction. The old Ming jar and the Sung celadon plate, heirlooms of yesterday, are now shadowed by the refrigerator, the bicycle and the gramophone.

It is against this background that the thoughtful have to teach in the aesthetic field. There is nothing they can teach of carving, metal-working, design and weaving. The people do—or did—know it all uniquely. The young people no longer want it; better to buy cloth than make it, to use a two-dollar *parang* knife instead of a finely wrought one from the Batang Kayan. On the other hand, efforts to teach western art, painting in perspective, and such like, are not at this stage producing the best results. This is a fairly familiar dilemma where West teaches East so fast, and one that has seldom been solved at all effectively.

Further good work was done in the more limited field of "western" art, by the Kuching Art Club. The members are Chinese, Malay and European and they work in mixed styles not closely related to the Dayak aesthetic.

The Art Club again continued co-operation with special reference to the improvement of Museum display cases and exhibits generally. For the second year running, Miss Margaret Wee devoted many hours each week to completing a magnificent mural of Dayak life running right across the upstairs galleries in the Old Museum Building; and then starting another which will tell the history of Sarawak cultures and religions from the stone-age into the atomic. Four other murals were completed by Kenyahs from Long Nawang, including a splendid "Tree of Life". A Punan from the Kakus River in the Fourth Division spent much of the year working on an enormous "*Salong*", an elevated wooden coffin which will be completed and incorporated shortly as a striking addition to the Museum exhibits.

The Museum and Sarawak Culture

The Sarawak Museum continued collecting the verbal materials of Sarawak legend and pre-literate group history, as well as the more tangible products of local artists and craftsmen.

Attention was focussed on the Kenyahs of the upper Baram and their traditional relationships with those of Kalimantan

as the main study during the first part of 1960. Later in the year particular attention was paid to the Kayan and so-called "Kajang" peoples of the upper Rejang River. Dr. Brian de Martinoir, a Belgian ethnologist, is working up there under the auspices of the Australian National University. The Curator made a ten-day trip upriver to work out, with Dr. de Martinoir, plans for the systematic tape-recording of the extremely rich and relatively uncontaminated oral literature of this remote area.

With the generous help of a number of European ladies—including Mrs. Ann Bruen, Mrs. Dorothy Morris, Mrs. Maddison, Mrs. June Alderton and Mrs. Betty Scanlon—encouraging advances have lately been made in the heavy task of translating Iban, Melanau, Kedayan, Land Dayak and extinct Seru folklore into literary English. The first instalment is currently being prepared for separate publication; other items from these sources will be published in the *Sarawak Museum Journal* regularly henceforth.

In general, it is fair to say that a slowly widening sector of Sarawakians are growing to appreciate some of the less obvious services which a lively museum can supply in a topographically small but culturally rich and variegated country like this. Thus, to a moderate but gratifying extent, the Museum slowly but steadily increases as a focal centre of interest in and encouragement for local skills and ideas. The more far-seeing Sarawakians, in common with Asians very widely, are taking a growing and proper pride in the best of the past and its meaning for the future, as the second half of the twentieth century gathers its threat of nuclear nonentity.

Although plans are now happily afoot for sister institutions in Brunei and North Borneo, the Sarawak Museum, established by the Second Rajah, Sir Charles Brooke, in 1886, is still at present the only one on the island. Standing in beautiful gardens in Kuching, it has the finest collection of Borneo arts and crafts in the world and is an attraction to visitors as well as to local peoples of all races and ages. There was a conspicuous increase in the use of the Museum by school children during 1960. Many schools in the Kuching area now run regular Museum tours of instruction. It is hoped to extend some of these study facilities more widely throughout the country in the near future.

Several large new displays in the Old Museum Building attracted large attendances during the year. With the technical advice of Lord Medway, the Niah Cave exhibit in the entrance hall was further extended and is now a major attraction. With the assistance of visiting Kelabits, a striking display of upland burial rites was carried through in one upstairs gallery. In December, T. K. Budin and a talented young Chinese, Paul Kuek, completed a handsome, life-size exhibit of Green Turtles nesting and laying eggs on one of our three Turtle Island beaches (see Chapter V).

One of the two air-conditioned galleries downstairs is currently made available for visiting exhibitions. Outstanding in 1960 was one put on by the International Salon of Photography and opened by His Excellency the Governor on 29th October, 1960. This brought in hundreds of fine photographs from all over the world and thousands of people specially to see them.

Research scholars and visitors from abroad apparently continue to find study facilities available in the New Museum Building (completed in 1957) comparable to any in South-East Asia. Particularly welcome were Dr. George Schaller, sponsored by the New York Zoological Society to make field observations on *Orang-utans*; Professor W. R. Geddes of Sydney University, making a repeat study of his 1948-50 Land Dayak anthropological work; Dr. R. Peranio completing a research on the Limbang Bisayahs; and Dr. F. Allen, investigating the ethno-botany of bananas.

The Archives

Most of the surviving archives from outstations and other departments are by now believed to have been incorporated into the State Archives. The Museum Archivist won the Certificate of the New Zealand Library Association and will shortly return from advanced studies there. Although the raw material now deposited is of real importance for the future, much work is required in indexing and arranging before full use can be made of it. The question of inadequate space is also likely to arise before long.

As well as ancient documents, three copies of all newspapers and other locally printed materials must now be deposited in

the Archives by law. The bulk of this printed matter is rapidly increasing in Sarawak (see lists in Chapters VIII and IX below, for instance).

Other Studies

Work on the Malay communities continued as part of the co-ordinated socio-economic study initiated with the aid of Colonial Development and Welfare funds and lately conducted through the Museum.

Already published are the studies of Land Dayaks (Dr. W. R. Geddes), Sea Dayaks (Dr. Derek Freeman), Melanaus (Dr. H. S. Morris) and Sarawak Chinese (Dr. T'ien). The Kelabits of the far interior are the subject of a separate long-term study by the Government Ethnologist.

A wide range of more specialised studies have been made possible this year through the system of voluntary part-time honorary curators, each interested in his or her own field. There are now seventeen of these honorary curators. During the year, notable contributions from this source came, among others, from Mr. Yim Khai Sun (statistical study of stone-age dentitions), Mr. B. E. Smythies (handbook of birds on display in the Museum), Dr. N. S. Haile (overhaul of the whole reptile and fish reference collections) and Mrs. Betty Scanlon (preparation of an illustrated popular handbook of Sarawak arts and crafts, to be published by the Borneo Literature Bureau early in 1961).

V

FLORA AND FAUNA

THIS chapter aims to give some general idea of the natural life of the country, as well as indicating special points of interest in 1960.

Apart from the coastal plains of swamp forest, Sarawak is dominated by mountains and hills, each altitude, with varied forms of plant and animal life, meeting to form a tangled mass over the whole interior. Between dusk and dawn, the jungle is alive with the noise of thousands of insects. There are more than five hundred kinds of birds, more than a hundred species of mammals. Everywhere there is vigorous life going on all the year round. There is no rest for fauna or flora; plants grow all the time, animals do not hibernate; activity has no visible end.

Flora

High temperatures with little variation coupled with an annual rainfall of between 100 and 180 inches make for an ever-present greenness. The old leaves fall after the new ones have grown. This greenness is made up of an enormous number of different kinds of plants with violently different characteristics and habits of growth. Epiphytic life is apparent wherever there are trees. Almost every tree supports other forms of plants, mostly ferns and orchids, using the tree as host, but not "living off" the tree like parasites.

There are several hundred species of orchids, mostly living on trees, and not being horticultural wonders or difficult to cultivate. Many have most beautiful flowers and can be seen in gardens throughout the country. Some orchids, such as *Phalaenopsis amabilis*, have leaves six inches or so long and an inflorescence of more than three feet with white and yellow flowers, and live on trees. Others have roots in the ground with the tip of the plant growing indefinitely, and aerial roots clinging to forest trees to support their climb to the roof of the forest,

where they flower. Such a plant is *Vanda Hookeriana*. Its natural habitat is the swamp forest, but it is seen in many gardens growing up and above four-foot posts and flowering continuously.

In the dry season from April to September some jungle trees bear edible fruit. One looks like the English chestnut with a centre tasting not unlike an avocado pear; another is the luscious *durian*, weighing two or three pounds and much loved by many people.

Beneath the great forest trees there are thousands of other plants: beautifully coloured small foliage plants, terrestrial and epiphytic ferns of all shapes and sizes, mosses, gingers of all sorts, and many others. In the clearings and along river banks there are flowering shrubs, with pink and yellow their dominating colours.

It is often supposed that the jungle contains a great number of parasitic plants. This is not so. There are a few parasites, of which the most important are members of the mistletoe family. The unusual and huge *Rafflesia* is a parasite. It has no stem or leaves. Only the flower is visible, with strands of tissue growing inside the living substance of its host, usually woody climbers of the vine family. There are three known species of *Rafflesia* in Malaysia. The largest, *Rafflesia Arnoldii*, has five petal-like organs and in the centre a basin-shaped cavity large enough to bathe a baby in.

Another unusual plant is the pitcher plant (*Nepenthes*). These are climbers, usually in open country. They turn the tables on insects, especially ants, by snaring, drowning and digesting them. This is one of the few circumstances in which a plant eats an insect, and gets its own back. Many species of *nepenthes* exist among the mountainous and lowland groups. Some have small pitchers of one inch and some large, of sixteen inches. The pitcher consists of body, rim and lid. Within the body a liquid is produced that digests the insects. The inner surface of the pitcher is slippery, and once an insect is attracted by the beautiful colours or the sugary secretions round the inside of the rim, it has little chance of escape.

A feature of Sarawak is the specialised flora of the moss forests with their dwarf vegetation. These occur in various

parts of the country in mountain ranges above 3,000 feet. Layer upon layer of moss and dripping water abound, and the whole is in perpetual dampness.

Fauna

Perhaps the most dramatic place and easiest way to see into the teeming life of the island is to step out of the jungle and go into one of the great caves which honeycomb for miles wherever there is an outcrop of limestone; at mount Mulu on the Tutoh; around Long Akah on the Baram; inland from Bintulu; at Gunong Subis at Niah; and in many small hills behind Bau, above Kuching. Niah, already referred to in Chapter III as the classic Borneo stone-age site, is the largest, loveliest and fullest of life. Its principal inhabitants are roughly 1,000,000 bats and 2,000,000 swiftlets. And when the bats go out and the swiftlets come home at dusk it is difficult even to control your mind to millions. It is hard to imagine there are so many of any one animal in the whole world, let alone in one cave. The bats are of several kinds, some the size of a crow, others of a sparrow. Into the night they go to forage the air of the jungle. The swiftlets (of the genus *Collocalia*) are of three kinds, have tiny bodies and scimitar wings. Their nests they make of saliva excreted from special glands. These are the birds' nests of soup fame, prime delicacy of the Chinese gourmet. They are exported in quantity, the best quality (pure saliva) fetching as much as £10 a pound.

These swiftlets, who take as their food tiny beetles in and over the jungle canopy, work for man in two ways. One end salivates the nests; the other gives droppings of beetle elytra, providing guano, a very useful local fertiliser; and they are but two of several thousand vertebrate (spined) living species in Sarawak—and of as yet uncounted tens of thousands of insects, shells and so on.

Some of the more interesting other forms include:

(i) Apes and Monkeys

The most famous of all Borneo animals is the *Orang-utan* or *Maias*, the closest cousin of *Homo sapiens*. Once widespread over South-east Asia, it now survives only in Sumatra (a few) and restricted areas of Borneo. Owing to the high value put

upon them in zoos—where they make the most amiable of living exhibits—Orangs have been decimated in the past fifty years. The situation is now grave. The Orang is threatened with extinction, unless drastic measures can be carried out for immediate conservation. Such conservation also depends, in part, on active collaboration between the Indonesian and British Governments involved. During 1960, a Commission appointed by His Excellency the Governor, investigated the situation inside Sarawak, with particular reference to the First Division.

From evidence made by field-staff of the Forest Department and the Museum, it appears that there are certainly not more than a thousand Orangs left in the country in 1960. These are mostly split up into small and often widely separated groups, which make successful reproduction and rehabilitation more difficult. The new Serian-Simanggang road does not assist in this respect, since it happens to cut straight through one of the main Orang sanctuaries, around Balai Ringin. Even during this year, close observation has shown that the Orangs have retreated back into the Klingkang Mountains and the Indonesian border as a result of disturbance from these new road operations.

More encouraging is a decline in the number of Orangs known to have been illegally obtained (usually by shooting the mother to capture the baby) during this year. Only one new baby, "Derek", who may have come from Indonesian territory via Lundu, was confiscated by the Forest Department and handed over to the Museum for care. Later in the year, "Derek", in company with old-timers "Frank", "Nigel" and "Ossy" (see *Annual Report 1959*, p. 191) were taken by Mrs. Harrisson, by sea, to Europe and delivered in good health to approved zoos in the United Kingdom and Germany. Under present conditions, it is unfortunately impracticable to re-settle young Orangs successfully back into the wild.

Individual Orangs, cut off from a group, may wander on their own even for years and turn up hundreds of miles away from their normal setting. This can give rise to a false impression as to effective distribution. An astonishing case of this kind was the appearance of a huge male Orang at Long Moh in the Upper Baram River, 250 miles from any other present known

area. Mistakenly shot by a Kenyah, the skin, made by him into a dancing cloak, now provides a strange and rather sad new exhibit of the year in the Museum.

Whereas the *Orang* is now in perilous plight, Borneo's special monkey is actually prospering in Sarawak under legal protection. This great and peculiar animal, the Proboscis Monkey (*Nasalis Larvatus*), usually known by its Malay name of "Belanda" (Dutchman), has increased and extended its range in recent years. Fortune has strangely favoured the Proboscis, for although it makes an outstanding zoo exhibit, it is an exceedingly delicate pet and seldom lives in captivity. Further, it lives in vast areas of mangrove swamp, never interfering with human interests. The Proboscis is also normally rather shy, whereas the *Orang* is only too vulnerably tame. By building a series of hides in the delta swamp, a unique colour-film of Proboscis Monkeys was completed in the early months of the year. With less difficulty, a parallel half-hour documentary of the *Orang*, with particular reference to its feeding and nesting habits, was similarly completed. These were shown for the first time to an expert but enthusiastic audience in the Natural History Museum in London during August. Both films are being released through an English TV and Film Network in December, 1960.

The several other species of monkey and Borneo's other ape (the Gibbon or Wa-Wa) remain numerous in the jungle, but are increasingly subject to shooting for protein, by the very many Sarawakians who now have shotguns—so that a definite decrease is to be noted in the more populated areas recently.

(ii) Game Animals

Sarawak is rich in ground mammals. The rhinoceros is dangerously near extinction, largely owing to persistent (now illegal) hunting by the Dayaks, who sold them to the Chinese. Wild cattle are quite common in the northern part of the country; wild elephants are confined to North Borneo. Deer are very numerous; the *sambhur* deer or *rusa*, almost as big as a cow, is in some places a nuisance to rice farmers.

There is only one dangerous animal, the honey bear or *bruang*. The clouded leopard can be large and magnificent, but the people of the island regard it as effeminate. The honey bear,

if upset or with a family of young, will attack the unwary traveller. There are many stories of people clawed and even killed by angry honey bears. The baby bear is a great favourite as a pet, but as it nears maturity it becomes dangerous.

Pigs are still numerous over much of the country. But the massive annual migrations described by Banks and others earlier in the century are by way of becoming unusual events today. Again, incessant shooting is beginning to have a marked effect. It may well be that, unless measures of control are exercised, over-hunting will before long threaten the levels of essential minimum protein supply for large groups of inland peoples who depend on game, in the absence or scarcity of fish and shell-food upriver.

(iii) *Aquatic Animals*

Although little enough is yet known of aquatic animals living in Sarawak coastal waters of the South China Sea, progress has been made towards increasing our knowledge of what is turning out to be an interesting section of the Bornean fauna.

The *dugong*, a shy and silent beast—superficially resembling but in no way related to a sea-lion—now appears to be confined to a small area on Tanjong Datu, where the population of Malay fishermen and Chinese hunters is very small. The whole local population appears to number no more than a dozen.

The picture for cetaceans is brighter—much brighter than has hitherto been suspected. Two years' careful observation has given good records of at least fifteen different forms present in these waters, most of them previously unsuspected. These include not only the well-known common dolphin, the ten-foot Bornean white dolphin, the small lead-grey Irawadi which comes well up the river, and the little finless black porpoises of the estuaries, which were fairly well known before; new records include the Plumbeous Dolphin, a big one with a remarkably long beak; the very large Risso's; the Bottle Nosed (which turns out to be common); and a small black one, living in the muddy waters of estuary mouths, which has not yet been positively identified and may be new to science. Dr. F. C. Fraser of the British Museum has also described a largish dolphin collected near Lutong which is entirely new and is to be called the Sarawak Dolphin.

A key to aid in identifying the cetaceans so far recorded in the South China Sea is available on application to the Curator.

(iv) *Birds*

Messrs. Oliver and Boyd of Edinburgh, in November, published the long-awaited *The Birds of Borneo* by B. E. Smythies (price \$34). This magnificent volume of over 550 pages includes colour plates of all the common and many of the rarer birds by Commander A. Hughes, a foremost bird artist.

With this publication, some of the detailed research attention paid to ornithology in recent years can be relaxed. With this information now available in print, members of the general public will be able to widen the scope of bird study and contribute their own observations to fill the gaps that remain in our knowledge of local birds.

There is to be found in Borneo one of the richest resident bird faunae in the world. There are several sorts of hornbill, notorious for their domesticity: the male walls the female into the nest, feeds her there and only liberates her when the young are ready to fly. Among a number of fine pheasants, the Argus is as handsome as a peacock. Its dancing grounds are stamped out of the mud, so that several males can compete to the delight, or at least to the concern, of the females.

Sarawak has parrots, broadbills, ten kinds of pigeon, egrets, nearly twenty kinds of woodpeckers, exquisite sunbirds and flower-peckers, the lovely-voiced yellow-crowned bulbul, and so many other birds that it is doubtful if one man could ever learn to recognise them all on sight.

Attention has been paid during 1960 to keeping some interesting wild birds in captivity at the Museum. Their habits are studied, call notes recorded, movements photographed, before they are released back into the wild. Among interesting species kept in this way during the year were the beautiful Long-tailed Parakeet; the rare Blue-naped Parrot, only known from the offshore islands; a Collared Scops Owl raised from a baby; and a pair of nestling Yellow-vented Bulbuls which eventually came to prefer life in the house to the hazards of the wild.

(v) Marine Turtles

Sarawak's reptilian speciality is the big Green or Edible Turtle. Although this occurs elsewhere, only here do so many come up to lay, on three small beaches on islands off the coast (The Turtle Islands). Live turtles are protected. Only the eggs are collected, and a proportion are left to hatch out. Advances continued in experimental methods of rearing the baby turtles until they grow tough enough to evade most of their fish enemies. The study of turtle migrations and laying by marking females with tags was also continued.

In these experiments, the first of their kind anywhere, some 4,000 turtles were tagged with durable monometal numbered tags from 1953 to 1955. There were no long-term repeats until 1956. Then, on July 6th, one marked on July 30th, 1953, at last reappeared. By the end of July, fourteen repeats had been recorded: all turtles tagged in July and early August, 1953. One lady, number B1544, has now been checked in by the staff of turtle watchers on Talang Talang Besar as laying over 1,000 eggs on eleven registered visits, five in 1953 and six in 1956.

In 1957 a series of turtles tagged in 1953 and 1954 returned to the islands once more. This same trend has continued since. During 1959 the first time Sarawak tagged turtles were reported from outside the country—one in January from the east coast of North Borneo, and others from the Natuna Islands and the south-west coast of Kalimantan. A single tag from Talang Talang Kechil was also found washed-up on a beach at Vancouver Island, Canada; this mysterious event is still unexplained. No individual turtles have yet come up in more than one year since they were originally tagged. The evidence is now therefore strong that turtles spend periods of several years away from the islands without laying here in the interval. No turtle bearing a Sarawak Museum tag has been recovered laying in adjacent territories, such as the Natuna Islands and the Sulu Archipelago. Where these huge beasts spend their long holidays from reproduction remains a mystery. Nor is anything yet known of what happens to the baby turtles after they dash frantically down the beach into the sea and swim with frenzied energy away and out of sight,

A new Sarawak turtle enterprise during 1960 was the first experimental wholesale rearing, side by side, of hatchlings from the other two species of turtle which also occur in smaller numbers, on the offshore islands,—the medium-sized Loggerhead Turtle and the smaller Hawksbill, (the shell of which can be used as "tortoise shell"). Each of the three species has marked peculiarities in feeding and growing habits. It is possible to rear them fairly easily and rather cheaply on the islands. These could provide a possible alternative or supplementary source of revenue in years to come. This consideration cannot any longer be ignored, as Sarawak's population of Green Turtles, although relatively healthier than almost any in the world, shows distinct signs of feeling the effects of the general world decline in numbers of this highly vulnerable and economically valuable marine reptile.

(vi) *Snakes and Lizards*

Sarawak has the most dangerous and deadly snake in the world, the hamadryad or king cobra. It can grow over fifteen feet in length, is quite common, and one of the very few reptiles in the world which will sometimes attack human beings.

Lizards, of which there are nearly a hundred kinds, are more conspicuous, because of the attraction human dwellings have for some varieties such as the gecko or *chichak*. An observant person may sometimes see flying lizards, which actually only glide on membranes extended between the front and back limbs. Sarawak is rich in flying forms, its flying snake being one of the most spectacular. This peculiar snake, which looks quite ordinary, can (when it wishes) extend its ribs to produce two lateral sails and glide for quite a distance. One, let go from the upper storey of the Sarawak Museum, went nearly fifty yards. Among the amphibians, there are flying frogs with small bodies and big feet upon which are suckers. There are also very large toads, some weighing several pounds.

(vii) *Fish*

Sarawak has an immense diversity of sea fish, more than 150 of which are known and named as of economic interest by Malay and Melanau fishermen of the coast. The barracuda, bonito, king-fish and horse mackerel are the only sporting fish

met with regularly. The Museum has a very fine sail-fish obtained by fishermen in a net in Santubong some years ago. Otherwise, big-game fishing has not yet been proved feasible in these waters.

Hitherto, insufficient has been known about fresh-water fish over much of the country. The Chicago Natural History Museum, which has already sent two expeditions to Sarawak in the past decade, has now made a considerable grant to the Sarawak Museum to enable some of the major gaps in fish knowledge to be filled.

Work on this joint Chicago-Sarawak project was begun in 1958 and continues into 1961. It should usefully illuminate previous ignorance regarding our fresh-water fish, and also the amphibious and reptile forms of the same areas. A number of species new to science have already resulted, including a peculiar, half-blind gecko discovered living in the darkness of the Niah Caves.

(viii) *Spineless Animals (Invertebrates)*

Numerous other illustrations of the country's wealth of animal and plant life can be produced: molluscs (shells), crustaceans (crabs, etc.), anthropods (spiders, etc.), and nematodes (worms). In the invertebrate section of spineless or boneless animals the variety of forms is immense. There are also many beautiful butterflies, the loveliest of which is the Rajah Brooke's Bird-wing (*ornithoptera*) which decorated the country's one cent stamp in the King George VI issue.

The great cave at Niah is, among its many other attributes, the only locality in the world recorded in scientific literature as the home of a strange earwig-like parasite called *Arixenia esau*; as a result, very little is known of this insect. Following up a scientific paper published in the Royal Entomological Society's journal on the anatomy of this earwig and its related species, *Arixenia jacobsoni* (known from Java and Malaya), observations were made on the habits and living conditions of *arixenia* in the cave. These have resolved several mysteries, and have shown, for instance, that the insect is genuinely parasitic—which had before only been conjectured—feeding on the surfaces of the hairless skin of the extraordinary naked bat. An African form

of the same family (*hemimerus*) lives in the same way on the skin of a rat.

Regular observations have been kept on this grotesque *Arixenia* colony at Niah. It may well be desirable, at some future date, to protect it by declaring the world's first Earwig Reserve?

VI

ADMINISTRATION

SARAWAK is divided for administrative purposes into five Divisions, each in charge of a Resident.

These Divisions are—

- the First Division, with headquarters at Kuching;
- the Second Division, with headquarters at Simanggang;
- the Third Division, with headquarters at Sibu;
- the Fourth Division, with headquarters at Miri;
- the Fifth Division, with headquarters at Limbang.

Each Division is subdivided into a number of Districts, administered by District Officers, and most of the Districts into smaller areas or sub-districts each in charge of a member of the Sarawak Administrative Officers' Service. As far as is practicable, Government attempts to free Residents and District Officers from as much office work as is possible in order that they may tour their areas and maintain the close contact with the people which has always been the keynote of administration.

Progress in local government continued in 1960. Before the war the Native Administration Order was published as an enabling Ordinance to allow the gradual introduction of the people themselves into the administration of their own affairs. This Order contemplated the setting up of village committees to replace the individual chiefs, but the first experiment on these lines did not get very far owing to the outbreak of war and the impossibility of providing adequate supervision. In 1947 a scheme was drawn up for the development of local government through local authorities with their own treasuries. The Local Authority Ordinance, 1948, forms the basis for the powers of these authorities, and their revenues are made up of direct taxes, fines and fees, supplemented by a grant from the central Government calculated according to the number of tax-payers.

Most of the authorities first constituted were established on a racial basis, but this proved to be an unsound foundation, and the pattern on which they are now organised is the mixed, or inter-racial, authority, with jurisdiction over people of all races in the area. As from the beginning of the year 1957 the whole population of the country, now 744,391, has been under the jurisdiction of local authorities except for a small area on the coast between Miri and the Brunei border. This area was slightly reduced in size during 1960 and now contains a population of about 12,000 (1960 Census figures). All local authorities have a dual function: local government within the limits defined in the Local Authority Ordinance and, as sub-electoral colleges, the election of representatives to Divisional Advisory Councils, which in turn elect members to the Council Negri. In this electoral function three urban councils also elect one representative each direct to the Council Negri. Local authorities are themselves constituted by election.

A general election of representatives to district councils was held for the first time throughout the country during the months of November and December, 1959. All council areas were divided into wards avoiding as far as possible the creation of groups on a racial basis and encouraging voting on a territorial basis. Approximately 350 separate elections were held with comparatively little difficulty. The public showed great interest as could be seen from the enthusiasm to vote. The average poll was about seventy-five per cent of the electorate. All the newly elected councils took office with effect from 1st January, 1960.

In 1941, to commemorate the centenary of Brooke rule, His Highness the Rajah granted a Constitution, and in 1946, when Sarawak became a Crown Colony, the Supreme Council and the Council Negri retained the authority granted to them in that Constitution. This gave legislative and financial jurisdiction to the Council Negri, a body of twenty-five members of whom fourteen were official members appointed from the Sarawak Civil Service and eleven unofficial members, representative of the several peoples of the country and their interests. In addition, there were certain standing members—natives of Sarawak who had been members of the Council Negri immediately before the enactment of the new Constitution Ordinance. The Council had

the power to make laws for the peace, order and good government of the country, and no public money could be expended or any charge made upon the revenues of the country without the Council's consent. The Constitution also provided for a Supreme Council of not less than five members, of whom a majority should be members of the Sarawak Civil Service and of the Council Negri.

All powers conferred upon the Rajah or the Rajah-in-Council by any written law enacted before the date of operation of the Cession of Sarawak to His Majesty were vested in the Governor in Council. In the exercise of his powers and duties the Governor consulted with the Supreme Council, except in making appointments to the Supreme Council and in cases

(a) of such nature that, in the Governor's judgment, Her Majesty would sustain material prejudice by consulting the Supreme Council thereon; or

(b) of matters in his judgment too unimportant to require their advice; or

(c) of matters in his judgment too urgent to admit of their advice being given by the time action might be necessary.

In August 1956 an Order-in-Council was made and Letters Patent and Royal Instructions were promulgated which between them contained a new Constitution for Sarawak. It provides for a new legislative body consisting of forty-five members of whom twenty-four are elected unofficials, fourteen are ex-officio, four are nominated to represent interests which the Governor considers inadequately represented, and the remaining three are standing members two of whose seats are vacant and will not be filled. The new Supreme or Executive Council consists of three ex-officio members, namely the Chief Secretary, the Financial Secretary and the Attorney-General, two nominated members and five elected members who are elected, nominated or standing members of the Legislative Council. Councils representing the five Administrative Divisions of Sarawak, or Divisional Advisory Councils, as they are designated, elect twenty-one of the twenty-four unofficial members, and the remaining three members are elected by the Kuching Municipal Council, the Sibu Urban District Council and the Miri Urban District Council. To qualify for

election as an unofficial member a person must be, amongst other things, over twenty-one years of age and a British subject or a British protected person, and must, with certain exceptions, have resided for at least seven out of the last ten years in Sarawak. This Constitution came into force on 1st April, 1957, the day appointed by His Excellency the Governor for this purpose.

VII

WEIGHTS AND MEASURES

THE standard weights and measures recognised under the Laws of Sarawak are the Imperial yard, the Imperial pound and the Imperial gallon.

Certain local customary weights and measures having the values set out below are also lawful:

1 Tahil	=	1 $\frac{1}{3}$ ozs
1 Kati (16 tahils)	=	1 $\frac{1}{3}$ lbs
1 Picul (100 katis)	=	133 $\frac{1}{3}$ lbs
1 Koyan (40 piculs)	=	5,333 $\frac{1}{3}$ lbs
1 Chhun	=	1. $\frac{19}{40}$ inches
10 Chhuns	=	1 Chhek = 14 $\frac{3}{4}$ inches
1 Panchang	=	108 stack cubic feet

VIII

NEWSPAPERS AND PERIODICALS

KUCHING

	<i>Founded</i>
<i>Sarawak Gazette</i> (monthly: English)	1870
<i>Sarawak Museum Journal</i> (twice yearly: English)	1911
<i>Sarawak Tribune</i> (daily: English)	1945
<i>Chinese Daily News</i> (daily: Chinese)	1945
<i>Utusan Sarawak</i> (tri-weekly: Malay)	1949
<i>Pedoman Ra'ayat</i> (monthly: Malay)	1950
<i>Pembrita</i> (monthly: Iban)	1950
<i>Sarawak Vanguard</i> (daily: Chinese)	1952
<i>Radio Times of Sarawak</i> (fortnightly: English—Malay—Chinese—Iban)	1955
<i>Sin Wen Pau</i> (daily: Chinese)	1956
<i>Sarawak by the Week</i> (weekly: English)	1956
<i>Sarawak Dalam Sa-minggu</i> (weekly: Malay)	1957
<i>Sarawak Times</i> (daily: Chinese)	1958
<i>Sarawak Mei Chou Sin Wen</i> (weekly: Chinese)	1960

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APPENDICES

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TABLE IA. NUMBER OF SCHOOLS AND PUPILS AS IN SEPTEMBER, 1960

Type of School	PRIMARY			SECONDARY			TEACHER-TRAINING		
	Schools	Enrolment			Schools	Enrolment			Schools
		Male	Female	Total		Male	Female	Total	
GOVERNMENT AND AIDED SCHOOLS	Schools	Male	Female	Total	Schools	Male	Female	Total	Schools
Government	4	332	210	542	4	517	113	630	3
Local Authority	424	20,985	9,254	30,239	—	—	—	—	228
Private (Village Committee)	5	540	414	954	—	—	—	—	78
Church or Mission	126	6,842	3,064	9,906	3	239	54	293	1
Native Schools	20	4,347	3,472	7,819	11	1,935	1,113	3,048	1
Other Schools	9	550	451	1,001	—	—	—	—	7
Local Authority	231	23,076	18,409	41,485	14	2,937	1,433	4,370	—
Boards of Management	7	1,000	871	1,871	2	378	202	580	—
Church or Mission	24	511	445	956	6	221	124	345	—
UNAIDED SCHOOLS	850	58,183	36,590	94,773	40	6,227	3,039	9,266	—
TOTAL									
Add Primary					850	58,183	36,590	94,773	
Total Primary and Secondary					890	64,410	39,629	104,039	
Add Technical and Vocational					1	1	1	7	8
GRAND TOTAL					891	64,411	39,636	104,047	

APPENDIX A—(contd.)

TABLE IB. NUMBER OF PUPILS CLASSIFIED BY RACE AND TYPE OF SCHOOL AS IN SEPTEMBER, 1960
 (In this table the columns for Local Authority and Church or Missions include all schools under these managements, whatever the medium of instruction.)

Race of Pupils	School Age Population	TYPE OF SCHOOL				Percentage of School Age Population				
		AIDED SCHOOLS			Total					
		Government Schools	Local Authority	Church or Mission	Chinese Board					
Chinese	75,604	P. 132 S. 226	P. 1,900 S. —	P. 9,092 S. 3,024	P. 41,275 S. 4,369	P. 3 S. —	P. 52,798 S. 7,929	60,727	80.32	
Malay	34,393	P. 240 S. 220	P. 11,858 S. —	P. 969 S. 327	P. 65 S. 1	P. 890 S. —	P. 151 S. 13	P. 14,173 S. 561	14,734	43.13
Dayak and Other Indigenous	91,139	P. 134 S. 181	P. 17,283 S. —	P. 9,113 S. 467	P. 142 S. —	P. 61 S. —	P. 346 S. 20	P. 27,079 S. 668	27,747	30.44
Other Asians, Eurasians and Europeans	2,057	P. 36 S. 3	P. 199 S. —	P. 422 S. 103	P. 3 S. —	P. — S. —	P. 63 S. 2	P. 723 S. 108	831	40.39
TOTAL	203,193	P. 542 S. 630	P. 31,240 S. —	P. 19,596 S. 3,921	P. 41,485 S. 4,370	P. 954 S. —	P. 956 S. 345	P. 94,773 S. 9,266	104,039	51.15

P. denotes Primary and S. denotes Secondary

In accordance with a definition recommended by UNESCO, the school age population given above is the population between the ages of 5 and 14 years inclusive. The correct ages in Sarawak schools are: Primary—6 to 11 inclusive; Junior Secondary—12 to 14 inclusive, which may be followed by two, three or four years of Senior Secondary education.

APPENDIX B

SARAWAK ELECTRICITY SUPPLY COMPANY LIMITED POSITION AS AT 31ST DECEMBER, 1960

APPENDICES

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Township or Location	Installed Capacity	Maximum Demand on Station kW	Type of Supply	Units Sold 1960	No. of Consumers	Daily Supply Period (Hrs)	Remarks
Kuching ...	5,232	2,630	A.C.	9,528,813	6,381	24	To connect to the Kuching system.
10th Mile ...	17	12	A.C.	14,809	45	12	—
Bau ...	100	40	A.C.	55,971	136	13	—
Serian ...	95	46	A.C.	52,822	113	13	—
Betong ...	100	46	A.C.	54,168	161	13	—
Simanggang ...	218	141	A.C.	354,820	357	24	Extra plant installed.
Sibu ...	2,145	1,120	A.C.	3,627,247	2,861	24	Plant ex-Kuching installed.
Sarikei ...	172	157	A.C.	409,165	407	24	Extra plant to be installed.
Binatang ...	123	71	A.C.	152,525	234	24	Continuous electricity supplies instituted.
Kanowit ...	100	50	A.C.	87,744	146	13	Continuous electricity supplies instituted.
Kapit ...	125	70	A.C.	98,502	127	24	Conversion to A.C. planned.
Mukah ...	128	69	D.C.	127,290	196	18	Plant ex-Kuching installed.
Miri ...	880	420	A.C.	1,124,331	1,009	24	Continuous electricity supplies instituted.
Bintulu ...	125	64	A.C.	97,231	213	24	Extra plant being installed.
Marudi ...	100	72	A.C.	84,489	175	13	Planning new station.
Limbang ...	154	85	A.C.	161,139	247	24	—
TOTALS	9,814	5,093		16,031,066		12,808	

APPENDIX C

SARAWAK

CLIMATOLOGICAL SUMMARY YEAR 1960

HEIGHT OF STATION: 85 FEET A.M.S.L. STATION: KUCHING AIRPORT

LATITUDE : $1^{\circ} 29'N$
LONGITUDE : $110^{\circ} 20'E$

APPENDICES

APPENDICES

APPENDIX C—(contd.)

SARAWAK

CLIMATOLOGICAL SUMMARY YEAR 1960

HEIGHT OF STATION : 10 FEET A.M.S.L.

STATION : MIRI

LATITUDE : 4° 23' N
LONGITUDE : 113° 59' E

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Means or Extremes	
Mean 0800 hr. Air Pressure at MSL. (MBS)	1011.0	1011.4	1011.1	1010.4	1010.3	1010.5	1010.4	1010.2	1010.8	1011.8	1011.9	1011.9	—	1011.0	
Air Temperature in Degrees Fahrenheit:															
Means of—															
A—Maximum	... ... ... ... ...	... ... ... ... ...	86.3 74.2	85.3 73.8	88.0 74.9	88.6 75.2	88.7 74.9	87.4 74.2	89.5 75.7	87.5 73.6	87.4 74.3	86.1 74.1	87.1 74.0	— — — — —
B—Minimum	... ... ... ... ...	... ... ... ... ...	80.3	79.5	80.7	81.7	81.9	80.8	82.6	80.5	80.9	80.1	80.5	— — — — —
Mean of "A" & "B"	...	...	...	...	...	...	...	...	...	...	...	...	...	80.9
Absolute Extremes—															
Highest Maximum Date	... ... ... ... ...	... ... ... ... ...	89.2 15.19	88.2 29	93.0 71.0	92.0 72.7	92.4 73.2	92.0 72.1	91.8 70.6	91.1 71.4	90.8 71.3	91.0 71.3	89.6 72.5	— — — — —
Lowest Minimum Date	... ... ... ... ...	... ... ... ... ...	71.7 14.17	69.5 14.17	71.3 2	72.7 18	72.1 23	72.1 28	71.6 5	71.4 11	71.6 25	72.8 16	72.4 16	— — — — —
Lowest Maximum Date	82.6 29	78.6 20	84.6 18	83.0 22	82.0 22	82.8 11	86.3 28	86.3 15	81.1 20	83.6 23	83.9 13	83.9 30	— — — — —
Highest Minimum Date	76.5 15	76.8 18	77.6 13	76.9 16	76.8 13	78.9 16	75.9 20	78.2 17	77.8 17	76.2 16	76.2 17	78.2 22	— — — — —
Rainfall:															
Total (inches)	...	...	...	...	5.88	12.31	5.27	4.38	7.33	9.16	10.04	1.66	16.54	7.90
Most in a day—															
Amount (inches)	...	...	...	...	0.88	3.08	3.32	1.47	2.68	2.51	2.10	0.73	3.02	1.91
Date	...	...	...	...	11,29	29	18	18	17	18	12	27	1.5	1.5
Number of Days:															
Precipitation	...	...	...	...	19	17	7	16	14	13	16	10	21	24
Thunderstorm	...	...	...	...	3	2	3	4	5	4	6	2	5	6
Thunder heard	...	...	...	...	5	3	9	12	11	8	9	4	4	4
Fog	...	...	...	...	—	—	1	—	—	—	—	—	—	—
Gale	...	...	...	...	—	—	—	—	—	—	—	—	—	—
Bright Sunshine:															
Total hours	...	...	...	...	200.75	167.50	240.75	218.20	224.60	195.60	224.40	220.00	164.05	227.05
Daily mean (hours)	...	...	...	...	6.47	5.77	7.77	7.27	7.25	6.52	7.24	7.10	5.47	7.32
Earth Temperature in Degrees Fahrenheit:															
1 foot	...	...	...	...	83.3	82.7	85.1	86.4	86.5	85.4	84.9	87.9	84.3	83.3
4 feet	...	...	...	...	84.8	84.4	85.3	86.6	87.1	86.6	86.2	87.3	86.8	85.6

APPENDIX D

GOVERNOR AND COMMANDER-IN-CHIEF

Sir Alexander Nicol Anton Waddell, K.C.M.G., D.S.C.

MEMBERS OF SUPREME COUNCIL AT THE END OF 1960

- The Hon. the Chief Secretary (Mr. F. D. Jakeway, C.M.G., O.B.E.)
- „ the Attorney-General (Mr. P. E. H. Pike, Q.C.)
- „ the Financial Secretary (Mr. B. A. St. J. Hepburn)
- „ Mr. A. R. Snelus, C.M.G.
- „ Abang Haji Mustapha bin Abang Haji Moasili, C.B.E.
(Datu Bandar)
- „ Temenggong Jugah anak Barieng
- „ Pengarah Montegrai anak Tugang
- „ Mr. Ong Kee Hui
- „ Mr. Ling Beng Siew
- „ Mr. Chia Chin Shin

MEMBERS OF COUNCIL NEGRI AT THE END OF 1960

President:

The Hon. the Chief Secretary (Mr. F. D. Jakeway, C.M.G., O.B.E.)

Ex-officio Members:

- The Hon. the Attorney-General (Mr. P. E. H. Pike, Q.C.)
- „ the Financial Secretary (Mr. B. A. St. J. Hepburn)
- „ the Deputy Chief Secretary (Mr. A. R. Snelus, C.M.G.)
- „ the Secretary for Local Government (Mr. G. A. T. Shaw)
- „ the Resident, First Division (Mr. F. B. K. Drake, M.B.E.)
- „ the Resident, Second Division (Mr. A. J. N. Richards)
- „ the Resident, Third Division (Mr. A. F. R. Griffin)
- „ the Resident, Fourth Division (Mr. J. C. B. Fisher,
O.B.E.)
- „ the Resident, Fifth Division (Mr. M. J. Forster)
- „ the Director of Agriculture (Mr. J. Cook)
- „ the Director of Education (Mr. M. G. Dickson)
- „ the Director of Public Works (Mr. J. K. Wardzala)
- „ the Director of Medical Services (Dr. D. A. Baird, O.B.E.)

Elected Members:

The Hon. Mr. Ong Kee Hui

- ,, Tua Kampong Dol bin Osman
- ,, Wan Abdulrahman bin Datu Tuanku Bujang
- ,, Mohammad Su'ut bin Udin
- ,, Mr. Remigius Durin anak Nyangu
- ,, Mr. Dagok anak Randen
- ,, Mr. Anthony Nibong
- ,, Pengarah Montegrai anak Tugang
- ,, Mr. Buda anak Ulan
- ,, Mr. Tan Chong Meng
- ,, Mr. Sandah anak Penghulu Jarau
- ,, Mr. Chen Ko Ming
- ,, Mr. Ling Beng Siew
- ,, Mr. Ainnie bin Dhoby
- ,, Temenggong Jugah anak Barieng
- ,, Penghulu Umpau anak Empam
- ,, Mr. Chan Yong Khow
- ,, Tua Kampong Muip bin Tabib
- ,, Temenggong Oyong Lawai Jau, M.B.E.
- ,, Inche Atahar Khan
- ,, Mr. James Wong
- ,, Mr. Mak Yau Lim
- ,, Mr. Chieng Hie Kwong
- ,, Mr. Chia Chin Shin

Nominated Members:

The Hon. Abang Haji Mustapha bin Abang Haji Moasili, C.B.E.
(Datu Bandar)

- ,, Captain D. R. Gribble
- ,, Mr. Yeo Cheng Hoe
- ,, Mrs. Tra Zehnder

Standing Members:

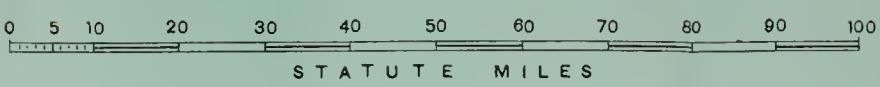
The Hon. Datu Abang Haji Openg

- ,, Abang Haji Mustapha, B.E.M.



SARAWAK

SCALE 1:1,500,000



LEGEND

- Road: Main —
- Road: Other - - -
- Road under construction - - - -
- Boundary: International - - + -
- Boundary: Division - - -
- Headquarters: Division ■
- Headquarters: District ■
- Government Station □
- Small Bazaar and/or Village ○
- W/T Station W.T.
- V.H.F. Station V.H.F.
- Lighthouse ▲
- Airport, Airfield ◊
- Forest Reserves and Protected Forests ■■■■■



